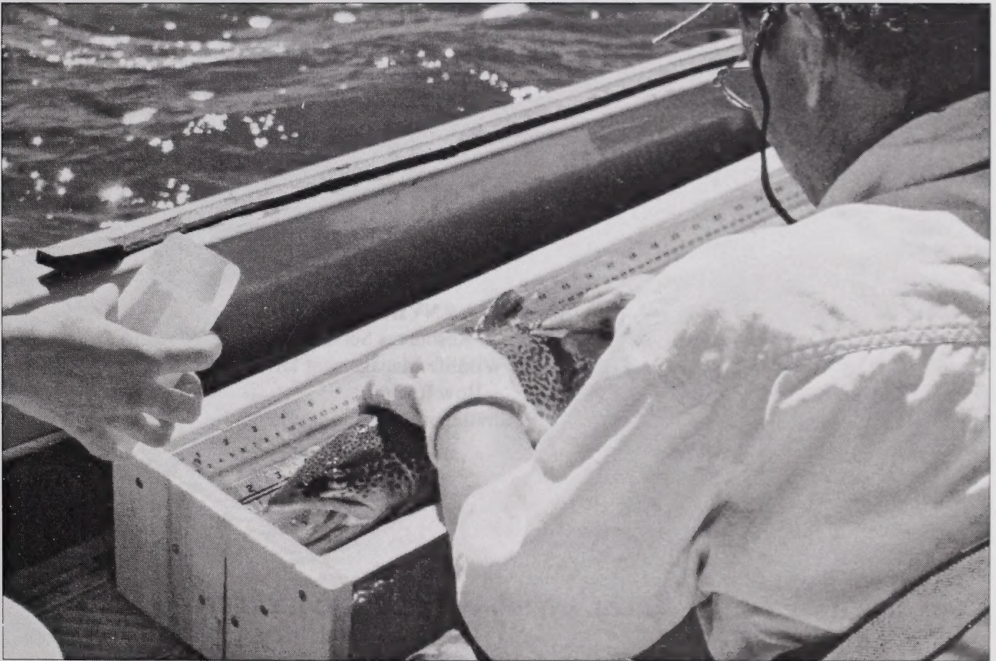


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Cover Photo: A member of Alberta's Fisheries Centre staff weighs a steelhead trout in a Bow River
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LOWER BOW RIVER FISH POPULATION STATUS ASSESSMENT

- August 2000 -



RL&L

Environmental Services Ltd.

LOWER BOW RIVER FISH POPULATION STATUS ASSESSMENT

August 2000

Prepared for

ALBERTA ENVIRONMENT
Natural Resources Service
Fisheries and Wildlife Management Division
Bow Region
Strathmore, Alberta

by

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March 2001



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Cover Photo: A member of Alberta Environment collects a scale sample for ageing purposes from a Bow River brown trout.

Suggested Citation: RL&L Environmental Services Ltd. 2001. Lower Bow River fish population status assessment - August 2000. Prepared for Alberta Environment. RL&L Report No. 855F: 30 p. + 3 app.

ACKNOWLEDGEMENTS

RL&L Environmental Services Ltd. would like to thank Mr. Trevor Rhodes and Mr. Cam Wallman of Alberta Environment for initiating the project and for providing information and guidance during the study. We would also like to thank the staff of Alberta Environment for their contributions to the data collection. Funding was provided by the Alberta Conservation Association.

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1.0 INTRODUCTION

The Lower Bow River near Calgary (downstream of Bearspaw Dam) provides an excellent sport fishery for rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), and mountain whitefish (*Prosopium williamsoni*). Fisheries studies conducted during the early 1980's assessed the status of brown trout and rainbow trout populations immediately downstream of Calgary (Sosiak and Griffiths 1983; Sosiak 1984). Based on these studies, new fishing regulations requiring anglers to release all trout greater than 40 cm in length were implemented in the section of river between Highway 22X bridge and the Carseland Weir in 1983. This regulation change was designed to increase the number of large trout in the system. Monitoring studies were conducted between 1984 and 1992 (Sosiak et al. 1988; Fernet et al. 1988; Courtney and Fernet 1989, Courtney and Fernet 1990, Courtney and Fernet 1991; Helwig and Courtney 1993; Courtney 1993) to assess the effectiveness of these regulations.

In August 1999, Alberta Environment and RL&L Environmental Services Ltd. (RL&L) conducted a fisheries study to update the status of the sportfish populations in the Lower Bow River. The results of this study were compared with the previous data of the 1980's and early 1990's in RL&L (2000). Recognizing that the continuation of the monitoring program is necessary to assess the impact of fishing regulations and increasing recreational use on the Lower Bow River sportfish populations, Alberta Environment contracted RL&L to assist in a follow-up survey in August 2000. Similar to the objectives outlined in RL&L (2000), the main requirements of the present study were to:

- derive population estimates (with confidence limits) for different size-classes of brown trout, rainbow trout, and mountain whitefish;
- calculate catch-per-unit-effort (CPUE) indices for these size-classes and species;
- determine life history data (length frequencies, length-weight regressions, condition factors, fork length to total length conversion factors, age-length relationships, injury indices, etc.) for the target species;
- identify possible changes in fish populations over time by comparing the current data to corresponding data from previous years; and,
- assess statistical assumptions inherent in mark/recapture methods (e.g., fish movement).

2.0 METHODS

2.1 STUDY AREA AND SAMPLE PERIOD

The study area was located on the Bow River in the City of Calgary (between Kms 49.5 and 53.5 downstream of the Bearsapaw Dam) and corresponded to the same 4-km river section assessed in 1999 (Figure 2.1). There are no major named tributaries to the Bow River within this river section. This section was further divided into four 1-km sub-sections to assess fish movements within the study area. The upstream and downstream boundaries of each section were geo-referenced (UTM - NAD27) using a Garmin 45 GPS unit. The mean width (m) and area (ha) of the study sections were measured from air photos (1:20 000 scale) taken on 17 July 1998. As reported in RL&L (2000), the total sampled area was approximately 36 ha within the 4-km study section. The study site was accessed using the boat launch at Fish Creek Provincial Park, located upstream of the Highway 22X bridge. The field sampling was conducted between 21 and 24 August 2000.

2.2 RIVER CONDITIONS

Water temperature (digital thermometer, ± 0.1 °C) and conductivity (Oakton TDSTestr3, $\pm 2\%$ FS) were measured in the Bow River within the study area each day during the study period. Discharge information for the Bow River at Calgary (Water Survey of Canada Station 05BH004) was obtained from the Forecasting Section of the Alberta Environment Water Sciences Branch.

2.3 FISH CAPTURE AND ASSESSMENT

Similar to the methods employed in 1999 (RL&L 2000), fish sampling was conducted by members of RL&L and Alberta Environment, using two three-person crews and two jet-drive electrofishing boats. The boats used were a Smith-Root SR18 and a Roughneck Tunnelhull; each boat was equipped with a GPP 5.0 electrofisher unit and two fixed-boom anode arrays. The electrofisher units were set at a frequency of 30 Hz and a pulse width of 3.5 ms, yielding a total power output ranging from 3.5 to 5.0 A. These settings were determined to be the most efficient for capturing large fish without inducing injuries. Pulse widths of 60 Hz were not used as they may have resulted in a higher incidence of injury (Snyder 1995).

Sampling within each section was conducted along both banks of the river. To ensure optimum coverage, the boat operators manoeuvred the boats in a downstream direction. In areas where islands were encountered (Sections 2 and 3), sampling was conducted in the channel where sufficient depth and better fish habitat existed. Each section of the study area was sampled twice daily.

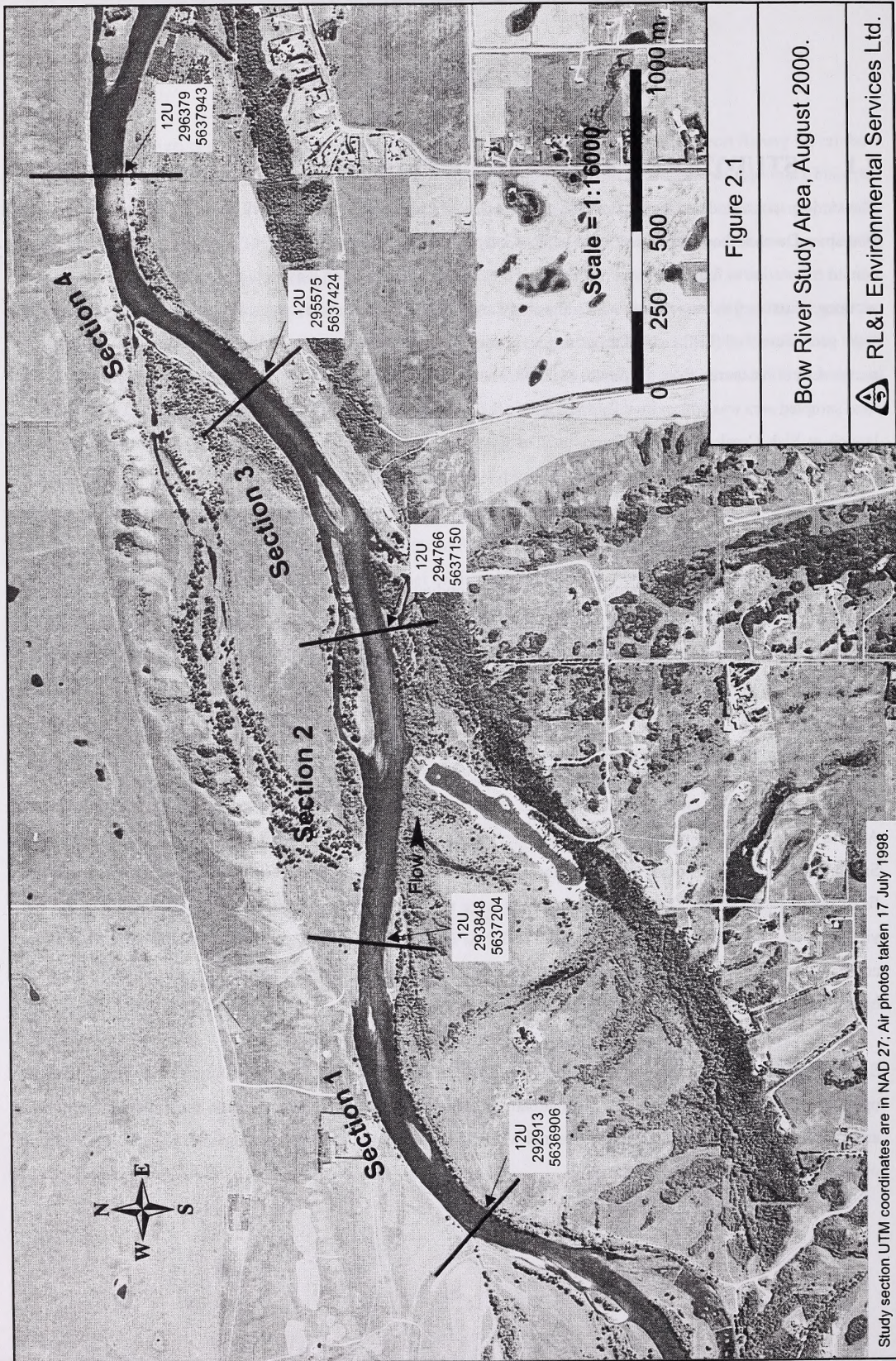


Figure 2.1

Bow River Study Area, August 2000.



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The captured fish were retained in an on-board aerated holding tank prior to processing. Once sampling of a sub-section was completed, the fish were transferred into aerated tanks for processing by two crews on two additional boats.

All life history data (Appendix A, Table A1) were collected by Alberta Environment personnel. Fork length and total length of the captured fish were measured in millimetres (± 1 mm); weights were measured in grams (± 5 g), using a Pelouze Model PE10CN digital read-out scale. Life history information was collected from all fish, including recaptures. Most trout and mountain whitefish greater than 200 mm in fork length were tagged at the base of the dorsal fin with orange 'T-bar' anchor tags (Floy[®] Model FD-94). Smaller trout and mountain whitefish were marked by clipping the pectoral or pelvic fins. Different fins were clipped on each sampling day to identify the date of original capture (Table 2.1). In addition to the "date" clip, each small fish was marked on the caudal or adipose fin with a hole punch; the position of the punched hole indicated capture location (Table 2.1).

Table 2.1 Fin marking procedures for identifying capture date and location during the Bow River fish population assessment, August 2000.

Code	Capture Date	Fin Clip	Code	Capture Location	Fin Punch
A	21 August	Left pectoral fin	1	Section 1	Upper lobe of caudal
B	22 August	Right pectoral fin	2	Section 2	Middle of caudal
C	23 August	Left pelvic fin	3	Section 3	Lower lobe of caudal
D	24 August	Right pelvic fin	4	Section 4	Adipose clip

Scale samples were collected from representative individuals of each species. Otoliths (and associated scales) were also collected by Alberta Environment personnel on a subsequent inventory program, and were used to validate scale ageing. Otoliths were not taken during the population study to prevent biases in the marked cohort. Each fish was examined for evidence of external damage and injuries (e.g., hook damage from angling activities) prior to release. The severity of each injury was categorized as low, medium or high. All fish were released near shore at the mid-point of the corresponding capture sub-section in order to reduce possible biases associated with fish movements between sections.

2.4 DATA ANALYSIS

2.4.1 Size-Classes

The size-classes were based on the criteria developed by Courtney (1993) and those reported in RL&L (2000). The "large" size-classes corresponded to the size limits established by the current Alberta Fishing Regulations (i.e., maximum 40 cm total length for trout species and minimum 30 cm total length for mountain whitefish). The "medium" size-classes were consistent with those reported in Courtney (1993) and RL&L (2000). Based on the total length versus fork length regression equations (Courtney 1993), the "large" size-classes included brown trout, rainbow trout, and mountain whitefish that were greater than 388, 380, and 280 mm in fork length, respectively. The difference in fork length between brown trout and rainbow trout is attributed to the deeper fork of the caudal fin in rainbow trout.

2.4.2 Catch Data

All CPUE calculations were based on brown trout, rainbow trout and mountain whitefish greater than 150 mm in fork length. Separate CPUE values for each species were calculated for each study section and for each size-class of fish. The CPUE indices were presented in this report as fish/km and fish/1000 s to allow comparisons with previous years data. Recaptured marked fish were included in the database used to generate CPUE values.

2.4.3 Life History

Fork length data were presented as length frequency histograms based on 10 mm size intervals. The relationship between fork length and total length was calculated using least squares regressions to allow conversions between the two measurement criteria. Relationships between length and weight were presented as length-weight regressions (log fork length vs log weight) and as Fulton's condition factor calculated according to Ricker (1975). The length and weight calculations included all fish captured for the first time; marked recaptures were excluded from the calculations as they would have biased the size characteristics of the populations.

Approximately 100 fish of each target species were aged. Fish were aged according to protocols outlined in Mackay et al. (1990). All ageing structures were read by a minimum of two qualified personnel. Magnified scale images were produced to facilitate the ageing process.

2.4.4 Population Estimates

The population estimates were calculated using the MARK software (White and Burnham 1999). This software is available at www.cnr.colostate.edu/%7egwhite/mark/mark.htm and contains the CAPTURE program used to calculate population estimates in 1990-1992. The fish data were summarized into mark-recapture events and fish encounter history files were generated according to procedures described in White and Burnham (1999). The encounter history files were subsequently grouped by species and size-classes. The population size analyses were based on eight sampling events. The output of the MARK software included an estimate of population size, standard error, coefficient of variation, upper and lower 95% confidence intervals, and capture probabilities for each tested group.

During the 1982-1988 period, population estimates of the Bow River fish were generated using the Darroch estimator (White et al. 1982). During the more recent studies (1990-1992 and 1999), population estimates were derived using the Null method (Otis et al. 1978) in addition to the Darroch estimator. Similarly, the present study utilized both the Darroch and Null methods to enable comparisons with previous data and to allow for a more complete assessment of population size changes over the past two decades.

Population estimates were generated separately for three size-classes of brown trout (150-250, 251-388, and >388 mm in fork length) and rainbow trout (150-250, 251-380, and >380 mm in fork length) to be consistent with the size-classes used in the 1990-1992 and 1999 population studies. Mountain whitefish population size in the study area was estimated for the first time in 1999; these estimates were generated for two size-classes (200-280 and

>280 mm in fork length). During the present study, mountain whitefish population estimates were calculated for three size-classes (150-199, 200-280, and >280 mm in fork length) to allow for more accurate determination of the size of the youngest cohorts.

In addition to generating estimates for separate size-classes, the recapture data were pooled for each species to estimate the population size of all size-classes combined. All population estimates are expressed as the number of fish/km and fish/ha to allow comparisons to previous studies.

Recaptured fish were assessed to determine the distances travelled between the original capture and recapture locations during subsequent sampling runs (infrequent recaptures of fish that were marked during the same sampling run were ignored). These calculations were used to assess movements of fish out of the study area. This determined the potential bias in the population estimates caused by a violation of the closure assumption inherent in mark-recapture methodologies. The movement data were summarized for all size-classes of brown trout, rainbow trout, and mountain whitefish; they were not calculated for individual size-classes because of limited sample sizes of recaptured fish. Movements of fish recaptured twice were considered as two separate events.

The encounter histories of fish that were fin clipped (i.e., not marked with a unique tag number) were generated by matching the clip code information and fish size data upon recapture to the original capture information.

3.0 RIVER CONDITIONS

Mean daily discharge of the Bow River in Calgary during the fish capture events in 2000 decreased from 89.2 m³/s on 21 August to 77.2 m³/s on 24 August (Alberta Environment, Water Sciences Branch). The flows in 2000 were lower compared to the long-term average flows during 21-24 August over a twenty-year period between 1975 and 1994 (Environment Canada 1996), and considerably lower than the conditions in 1999. Water temperatures in the Bow River during the study period (21 to 24 August 2000) ranged between 14.4 and 18.7°C, whereas water conductivity varied between 271 and 305 µS (Table 3.1).

Table 3.1 Water temperature, conductivity, and mean daily discharge of the Bow River during the fish population assessment, August 2000.

Date	Water Temperature (°C)	Conductivity (S)	Mean Daily Discharge (m ³ /s)	
			2000 ^a	1975 - 1994 ^b
21 August	14.8 - 17.9	275 - 296	89.3	107
22 August	14.4 - 18.6	273 - 293	84.8	105
23 August	15.7 - 18.7	271 - 291	79.7	106
24 August	16.5 - 18.0	291 - 305	77.2	103

^a preliminary data from Alberta Environment - Water Science Branch.

^b long-term (20-yr) average calculated from mean daily discharges (Environment Canada 1996).

During the 1975-1994 period, mean monthly flows of the Bow River in Calgary were highest in June (174 m³/s) and considerable lower in August (113 m³/s). Comparison of mean monthly flows in August during the years when previous population estimates in the Bow River were carried out indicated that higher than “normal” flows occurred in 1990, 1991 and 1999 (August means of 135, 158 m³/s and 177 m³/s, respectively), whereas lower than “normal” flows occurred in 1982-1985, 1988, 1992, and 2000 (August means ranged from 88 to 106 m³/s).

Daily flows during the present study were approximately 21% lower than the ‘normal’ flows during the corresponding dates between 1975 and 1994 (Table 3.1). This may have increased the sampling efficiency of the electrofishing operations by concentrating the fish in deeper holding areas. As a result of the reduced flows in 2000, water temperature and aquatic macrophyte abundance were higher than in 1999.

The mean width (m) and area (ha) of the study sections were measured from air photos (1:20 000 scale) taken on 17 July 1998. As reported in RL&L (2000), the total sampled area was approximately 36 ha within the 4-km study section.

4.0 SPECIES COMPOSITION AND RELATIVE ABUNDANCE

4.1 SPECIES COMPOSITION

In total, 1381 sportfish were captured during the August 2000 population study of the Bow River (Table 4.1). Mountain whitefish ($n=654$) was the predominant species in the catch, contributing almost half (47.4%) to the total catch. Rainbow trout ($n=441$) and brown trout ($n=278$) contributed 31.9% and 20.1%, respectively, to the total catch. Other sportfish species in the catch included burbot ($n=4$) and bull trout ($n=4$). Non-sportfish species (longnose sucker and white sucker) were frequently observed in the study area but were not enumerated during the study.

Table 4.1 Sportfish species captured in the Bow River, August 2000.

Species		Number Captured ^a	Percent Composition
Mountain whitefish	<i>Prosopium williamsoni</i> (Girard)	654	47.4
Brown trout	<i>Salmo trutta</i> Linnaeus	278	20.1
Rainbow trout	<i>Oncorhynchus mykiss</i> (Walbaum)	441	31.9
Bull trout	<i>Salvelinus confluentus</i> (Suckley)	4	0.3
Burbot	<i>Lota lota</i> (Linnaeus)	4	0.3
TOTAL		1381	100.0

^a Includes recaptured fish.

4.2 RELATIVE ABUNDANCE

Relative abundance data for each size-class of brown trout, rainbow trout, and mountain whitefish in the study area are summarized as catch-per-unit-effort (CPUE) indices for each sampling day and study section (Appendix B, Figures B1 to B3). The overall CPUE values for all size-classes combined are presented in Figure 4.1. The sampling effort remained relatively constant during each sampling run (ranged from 4461 to 5848 seconds per 4-km run along both banks); therefore, CPUE indices are presented as number of fish captured per 1-km section sampled (both banks included). CPUE indices expressed as number of fish per 1000 seconds of electrofishing time are included in Appendix B, Tables B1 to B4.

In general, catch rates for each species did not vary greatly between study sections and between days. Catch rates for brown trout ranged between 3.5 and 14.5 fish/km (mean of 8.7 fish/km), regardless of sampling day or study section (Appendix B, Table B2). Catch rates for brown trout were highest in Section 1 during the first three days, but highest in Section 4 on the fourth day. Lower catch rates were frequently observed in Section 2. The catch rates in Section 1 decreased steadily over the four day period.

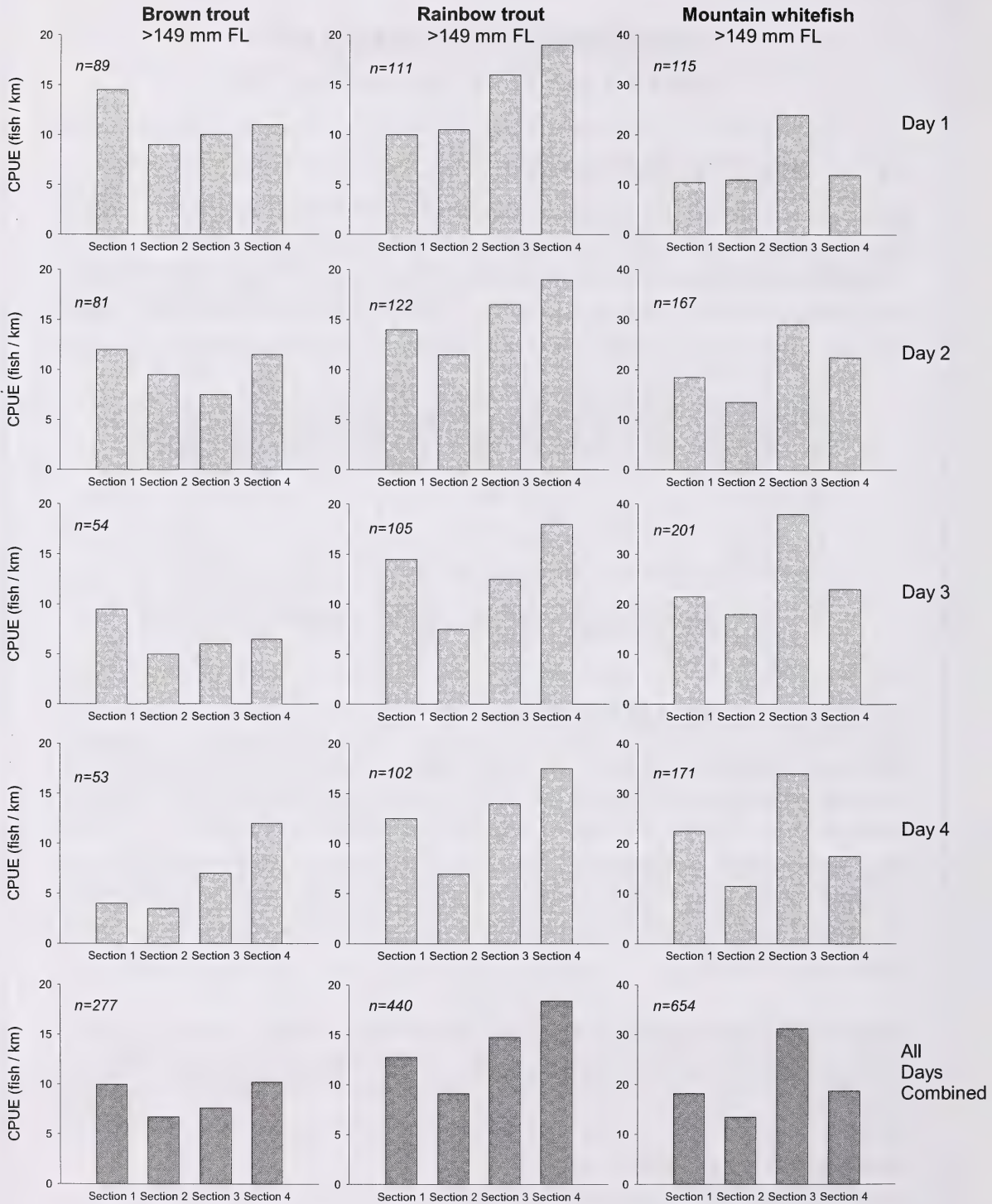


Figure 4.1 Relative abundance, expressed as catch-per-unit-effort (CPUE), of brown trout, rainbow trout, and mountain whitefish captured in the Bow River, August 2000 (note changes in y-axis scales).

Catch rates of rainbow trout were higher and less variable in 2000 (7.0 to 19.0 fish/km; mean of 13.8 fish/km; Appendix B, Table B3) than in 1999 (1.5 to 12.5 fish/km; mean of 5.9 fish/km; RL&L 2000). The catch rates were similar between days. Catches in Section 4 were always highest and in Section 2 were frequently the lowest.

Mountain whitefish catch rates varied from 10.5 to 38.0 fish/km (mean of 20.4 fish/km). Mountain whitefish catch rates were generally highest in Section 3 and lowest in Section 2 (Appendix B, Table B4). Section 3 contains a rapid deep-run habitat complex, which may have provided more suitable mountain whitefish habitat than the other sections under the low flow conditions.

The overall mean catch rates in 2000 (all study sections and sampling days combined) are compared to the previous data from 1990 to 1999 in Table 4.2 and Figure 4.2. To be consistent with the units presented in Courtney (1993), the mean CPUE indices are presented as the number of fish captured per 1000 seconds of electrofishing effort. Standard deviations of the means are presented to describe daily variability in the catch rates.

Table 4.2 Mean catch per unit effort (CPUE expressed as fish/1000s) and standard deviation (SD) for sportfish captured in the Bow River in August 2000 compared to similar data from 1990-1992 (Courtney 1993) and 1999 (RL&L 2000).

Study Year	Parameter	Brown Trout Size-Class (mm FL)			Rainbow Trout Size-Class (mm FL)			Mountain Whitefish Size-Class (mm FL)		
		150-250	251-388	>388	150-250	251-380	>380	150-199	200-280	>280
2000	Mean	3.03	1.20	2.75	4.60	1.19	5.23	1.52	7.01	7.72
	SD	1.18	0.29	0.80	0.95	0.34	0.47	0.78	2.01	2.05
1999	Mean	3.36	1.11	5.41	0.34	0.40	4.79	-	10.26	4.80
	SD	0.14	0.45	1.03	0.23	0.20	0.62	-	1.84	2.60
1992	Mean	8.11	5.00	1.46	4.72	3.08	5.09	-	-	-
	SD	4.15	2.03	0.87	2.14	0.17	0.57	-	-	-
1991	Mean	9.33	1.92	0.48	0.43	2.10	2.82	-	-	-
1990	Mean	4.60	0.30	1.20	5.00	0.90	3.90	-	-	-

Catch rates of brown trout in the two smaller size-classes were comparable to those reported in 1999; however, the catch rates of the adult size-class (>388 mm size-class) were two times lower in 2000 than in 1999. CPUE values for the juvenile size-class (150-250 mm) remained considerably lower in 1999 and 2000 than those reported by Courtney (1993) in the early 1990's. Catch rates of the intermediate size class fell within the range of values presented by Courtney (1993) and RL&L (2000). The variability in rates may be related to changes in spawning success of individual cohorts or other environmental factors, such as flow regime.

Catch rates of juvenile rainbow trout (150-250 mm) were approximately thirteen times higher in 2000 than in 1999. A similar dramatic increase was observed in the catch rates between 1991 and 1992. The catch rate of rainbow trout in the intermediate size class (251-380 mm) also increased in 2000 compared to 1999. These differences may be

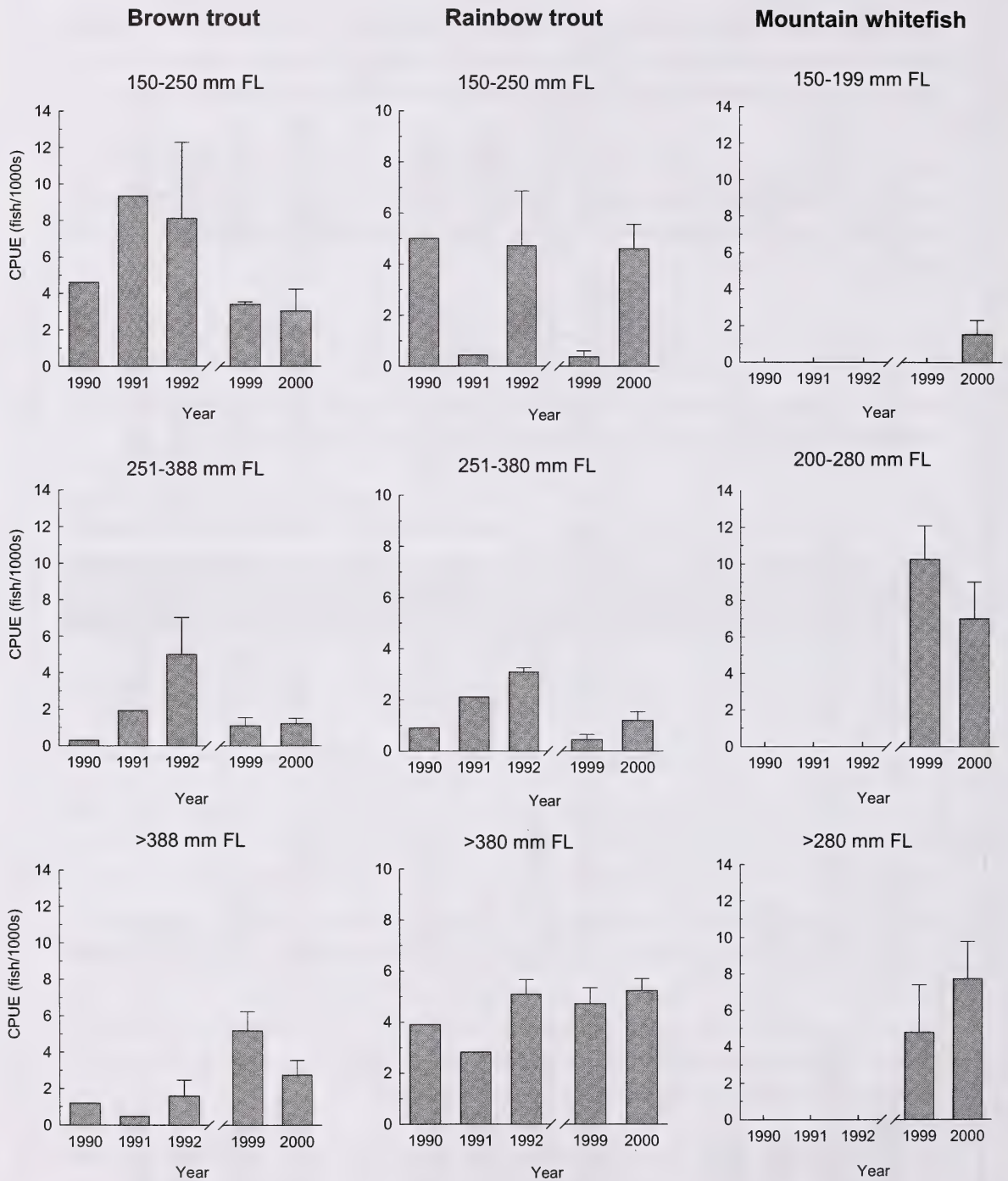


Figure 4.2 Comparison of brown trout, rainbow trout, and mountain whitefish catch-per-unit-effort (CPUE) indices recorded in the Bow River during 1990-1992 (Courtney 1993), 1999 (RL&L 2000), and during the present study. The histogram bars indicate mean CPUE values; the "T's" above the bars represent standard deviations of the means (note changes in y-axis scales).

attributed to changes in discharge levels in the Bow River during the sampling periods, as higher than normal flows experienced in 1999 may have resulted in lower capture efficiency for the smaller size-classes. The increase in catch rates of juvenile rainbow trout in 2000 may also be attributed to increased recruitment in 1999. Adult rainbow trout (>380 mm) were captured at approximately the same rate in 2000 as during the previous studies.

Mountain whitefish capture rates were lower in the intermediate size-class (200-280 mm) in 2000 compared to 1999; however, the opposite trend was noted for the large size-class (>280 mm). This suggested that the numerous 200-280 mm size class from 1999 contributed to the higher adult catches in 2000.

5.0 LIFE HISTORY DATA

5.1 SIZE DISTRIBUTION

Brown trout captured in the study area ($n=265$ excluding recaptured fish) ranged from 178 to 624 mm in fork length (Appendix B, Table B5). Similar to the catch in 1999, the length-frequency distribution exhibited two distinct size-classes (Figure 5.1). More than one-third (38.9%) of the catch was comprised of fish larger than 388 mm in fork length (i.e., fish protected by the current angling regulations). Juvenile fish between 178 and 279 mm in fork length were also well represented and contributed 54.8% to the total catch (Appendix B, Table B6). In contrast, fish between 280 and 388 mm were captured infrequently (6.4% of total catch). The length-frequency distribution in 2000 indicated more juvenile fish and fewer adults than in 1999; low numbers of fish in the intermediate size-class were observed during both years.

Rainbow trout ($n=411$) ranged from 158 to 590 mm in fork length (Appendix B, Table B5). The length-frequency distribution of rainbow trout indicated a bimodal distribution (Figure 5.1). Fish greater than 380 mm in fork length contributed much less to the total catch in 2000 (46.2%) than in 1999 (84.3%). These fish represented the size-class protected by the current regulations. The portion of the population in the 150 to 250 mm size-class was much higher in 2000 than in 1999 (42.8% and 6.5%, respectively). The rainbow trout size distribution in 2000 exhibited a high contribution of small fish (likely due to a strong 1999 cohort) and a minor contribution of fish in the 251 to 380 mm size class. A similar length-frequency distribution was recorded in 1990 (Courtney 1993).

Mountain whitefish ($n=613$) ranged between 155 and 465 mm in fork length (Appendix B, Table B5). The length-frequency distribution exhibited three distinct modes, which likely corresponded to age-classes (Figure 5.1). The most abundant size-class (155-239 mm) was dominated by yearling fish and contributed 43.3% to the total catch. Mountain whitefish larger than 280 mm in total length (i.e., fish legal for harvest under current regulations) contributed 47.3% to the total catch.

5.2 FORK LENGTH - TOTAL LENGTH RELATIONSHIPS

Relationships between fork length (FL) and total length (TL) were plotted for each of the target species to allow conversions between these two measurements methods (Figure 5.2). The regression equations were as follows:

Brown trout	$TL = 1.006 FL + 7.672$	$r^2 = 0.999$	$n=263$
Rainbow trout	$TL = 1.034 FL + 3.431$	$r^2 = 0.999$	$n=407$
Mountain whitefish	$TL = 1.061 FL + 3.112$	$r^2 = 0.998$	$n=613$

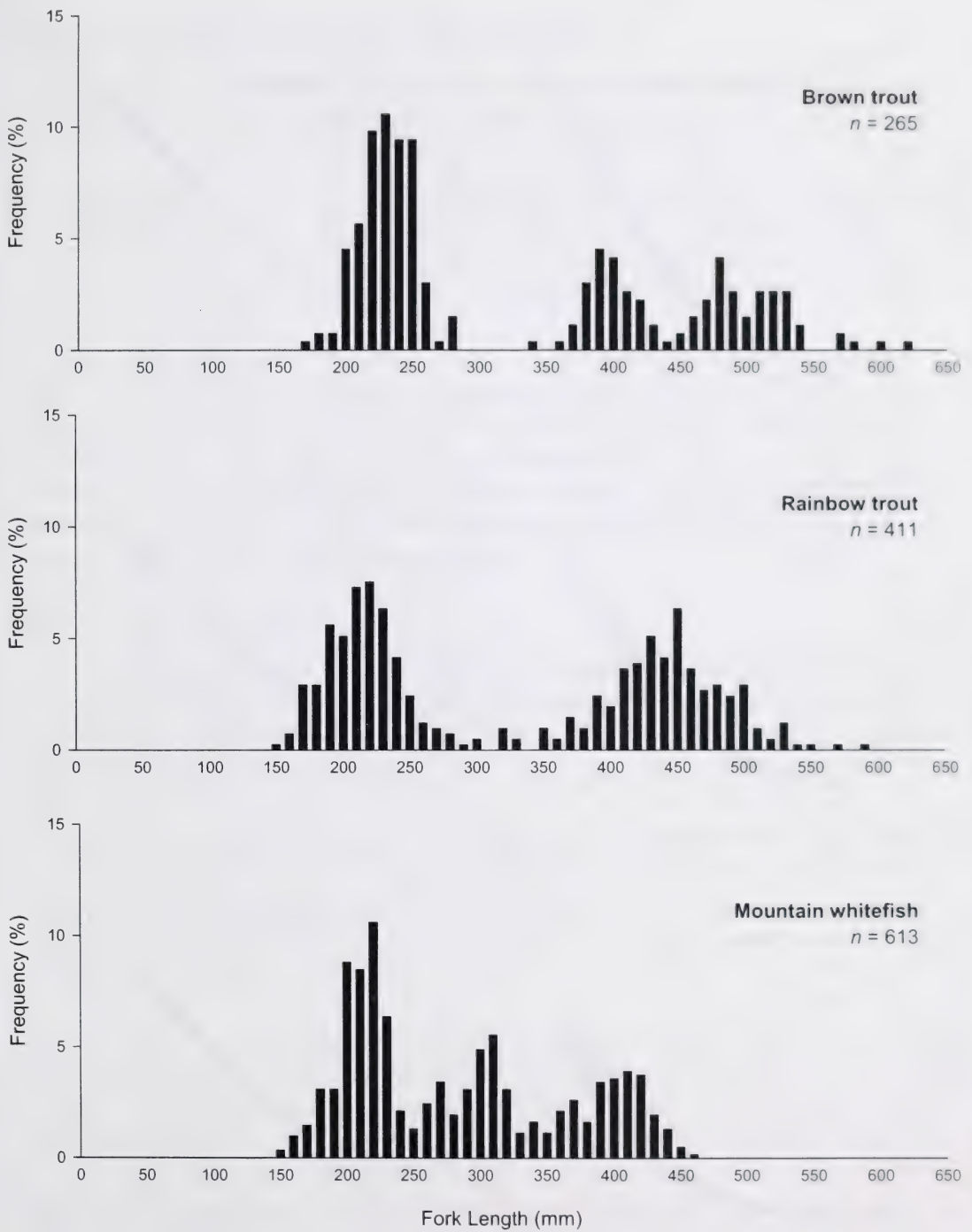


Figure 5.1 Length-frequency distribution of brown trout, rainbow trout, and mountain whitefish captured by boat electrofishing in the Bow River, August 2000.

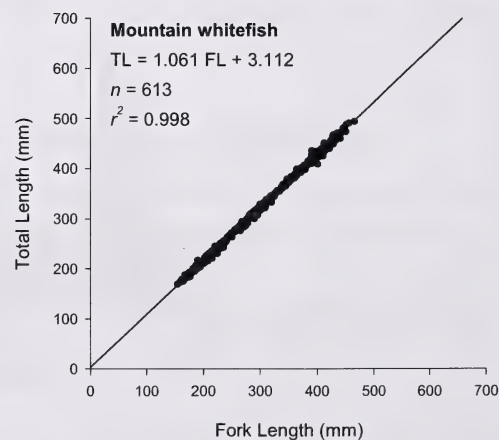
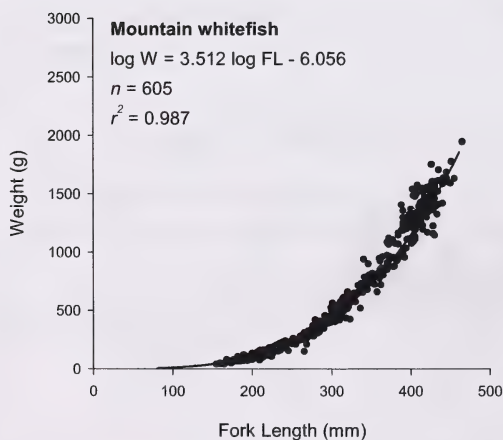
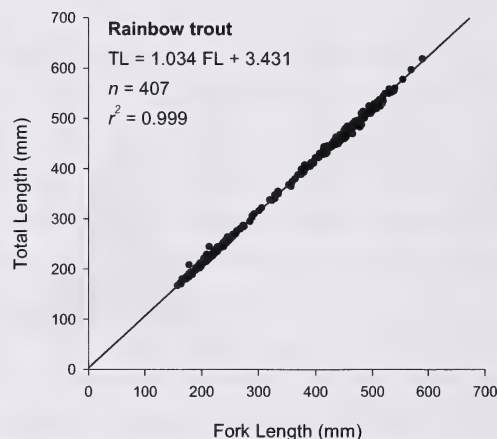
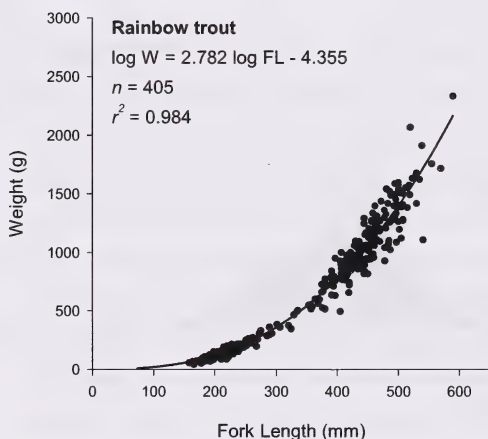
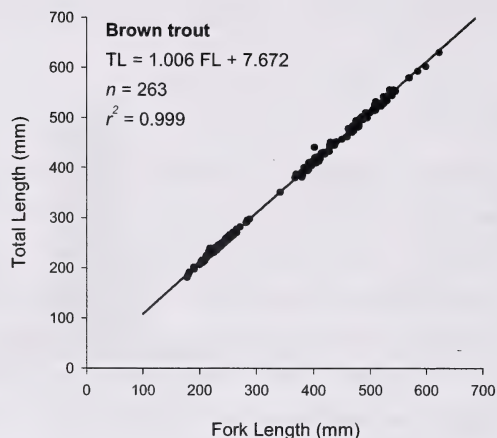
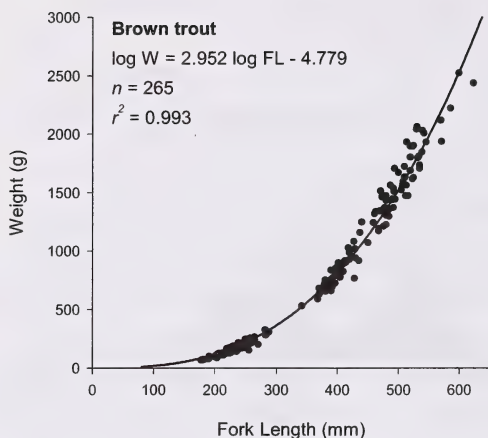


Figure 5.2

Fork length-weight regressions and fork length-total length relationships for brown trout, rainbow trout, and mountain whitefish in the Bow River, August 2000.

5.3 LENGTH-WEIGHT RELATIONSHIPS

The relationships between fork length (FL) and weight (W) for brown trout, rainbow trout, and mountain whitefish are illustrated in Figure 5.2. The calculated regression lines for each species were as follows:

Brown trout	$\log W = 2.952 \log FL - 4.779$	$r^2 = 0.993$	$n=265$
Rainbow trout	$\log W = 2.782 \log FL - 4.355$	$r^2 = 0.984$	$n=405$
Mountain whitefish	$\log W = 3.512 \log FL - 6.056$	$r^2 = 0.987$	$n=605$

Similar length-weight relationships for the trout species were recorded during the previous studies of the Bow River (Courtney 1993; RL&L 2000).

The mean condition factors for the three target species are presented in (Appendix B, Table B5). The mean condition factors for brown trout and mountain whitefish in the Bow River in 2000 were similar as in 1999. In contrast, adult rainbow trout (>380 mm fork length) were heavier at a given length in 2000 than in 1999 (mean condition factors of 1.17 and 1.12, respectively); this difference was statistically significant (t-test $p > 0.05$). As in 1999, condition factors were lower in the larger size-classes than the smaller size-classes for both brown trout and rainbow trout, whereas an opposite trend was recorded for mountain whitefish.

5.4 AGE AND GROWTH

A subsample of analysed ageing structures collected from sportfish in the Bow River during August 2000 consisted of otoliths and/or scales from brown trout ($n=97$), rainbow trout ($n=96$), and mountain whitefish ($n=102$). Age data for individual fish are included in Appendix B, Table B7. Age-length relationships for each species are summarized in Appendix B, Table B8 and plotted in Figure 5.3

Brown trout in the aged sample ranged from 1 to 8 years in age. Age 1 fish exhibited fast growth rates, attaining a mean length of 209 mm near the end of their second year of growth (i.e., late summer 2000). The small mode of the length-frequency distribution of the catch (Figure 5.1) was likely comprised of both Age 1 and Age 2 fish. Based on the aged sample, brown trout protected by the current angling regulations (i.e., fish larger than 388 mm in fork length) include fish of age 3 and older.

Rainbow trout in the aged sample ranged from 1 to 6 years in age (Figure 5.3). Wide variations in the size of Age 2 fish suggested the presence of distinct sub-populations (e.g., some of these fish may spend part of their life cycle in the lower reaches of the Highwood and Sheep rivers). Similar to brown trout, rainbow trout protected by the current angling regulations (i.e., fish larger than 380 mm in fork length) were mostly represented by fish of Age 3 and older.

Mountain whitefish ages ranged from 1 to 13 years in age (Figure 5.3). Growth rates were rapid until Age 2 and slower to Age 5. After Age 5, little growth occurred. Mountain whitefish protected by the current angling regulations (i.e., fish smaller than 280 mm in fork length) were mostly represented by fish of Age 2 and younger.

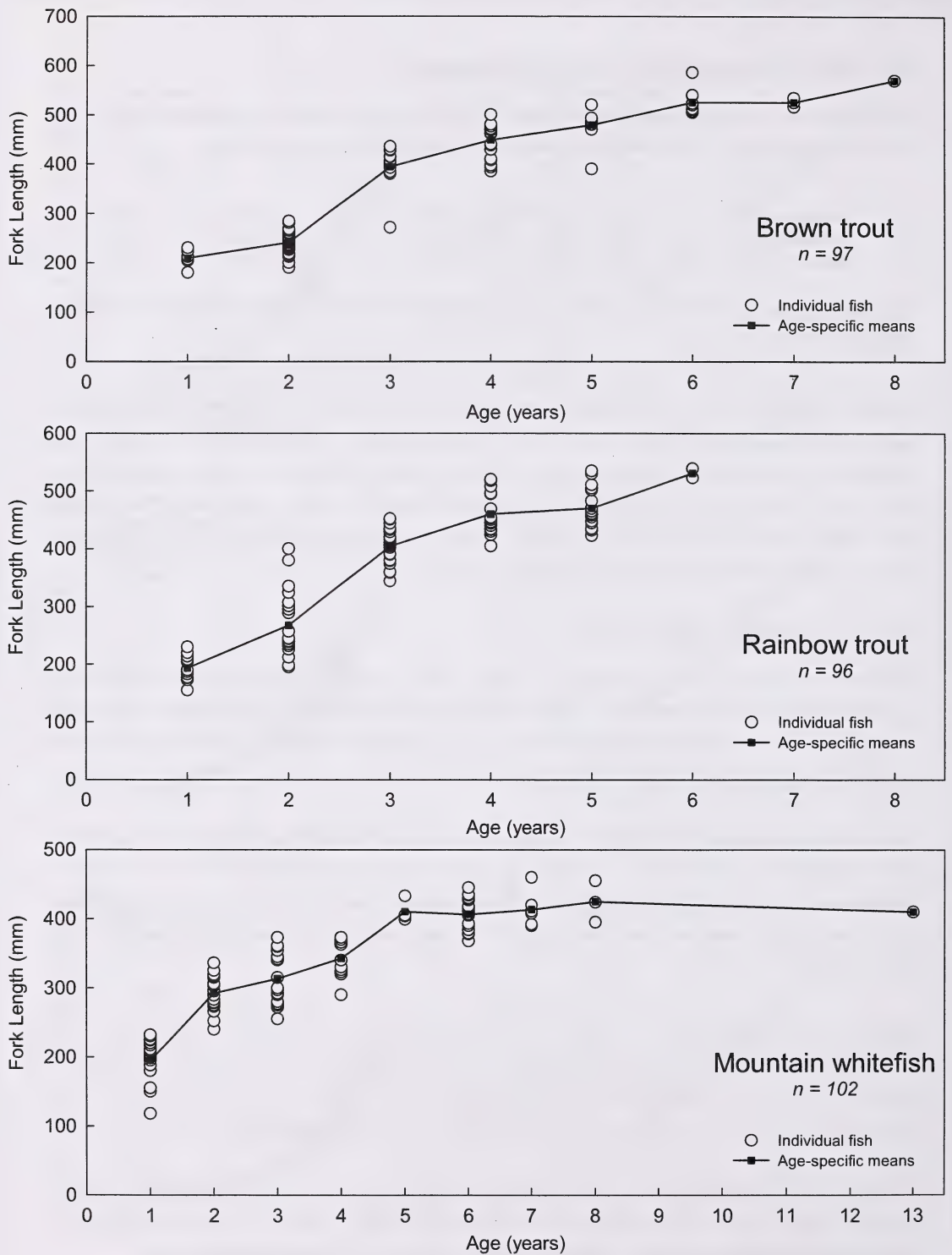


Figure 5.3 Age-length relationships for brown trout, rainbow trout, and mountain whitefish captured in the Bow River, August 2000 (note changes in y-axis scales).

5.5 FISH INJURY INDICES

Data on the incidence of injuries in fish sampled in the Bow River were collected in 2000 to assess the effects of angling on fish health, and to compare with previous studies (Courtney 1993, RL&L 2000). Injury rates for all species in the small size-class were low (~10%; Appendix B, Table B9); however, they were higher than those reported in 1999 (<5%, both species). In the medium size-class, one-third of the rainbow trout were injured, but rates were low in brown trout and mountain whitefish (<7%). The majority of recorded injuries were associated with the larger size-classes of brown trout (21%), rainbow trout (45%), and mountain whitefish (10%) that were most vulnerable to angling pressure.

Hooking related injuries (jaw, gill, head, or eye; Table 5.1, Appendix B, Table B9) in 2000 accounted for more than 91% of all injuries recorded in large brown trout, rainbow trout, and 47% of large mountain whitefish injuries. The incidence of hook related injuries in the large rainbow trout was approximately double of those recorded in previous studies (1990-92, 1999 data). The second most common injury type in mountain whitefish and rainbow trout during the present study was attributed the electrical current applied during sampling. The severity indices recorded of injuries are summarized in Table 5.1 and in Appendix B, Table B9. Injuries due to hooking were frequently categorized as more severe than injuries caused by disease, predation and electrofishing.

Table 5.1 Number of injured fish and causes recorded during fish population assessment in the Bow River, August 2000.

		Brown Trout				Rainbow Trout				Mountain Whitefish			
		150-250	251-388	>388	Total	150-250	251-380	>380	Total	150-199	200-280	>280	Total
Fish Examined		116	46	103	265	176	45	190	411	55	268	290	613
Fish Injured		9	3	22	34	16	15	86	117	0	4	28	32
Injury Rate (%)		7.8	6.5	21.4	12.8	9.1	33.3	45.3	28.5	0.0	1.5	9.7	5.2
Total No. Injuries		11 ^a	3	23	37	18	17	99	134	0	4	28	32
Cause/Severity^b													
Disease	L							1.0	0.8				
	M							1.0	0.8				
Total								2.0	1.5				
Electro-fishing	L					16.6		5.1	6.0		75.0	17.9	25.0
	M											7.1	6.3
	H											7.1	6.3
Total						16.6		5.1	6.0		75.0	32.1	37.5
Hooking	L	63.6	66.7	52.2	56.8	38.9	35.3	37.4	37.3		25.0	17.9	18.8
	M	18.2	33.3	26.1	24.3	22.2	17.7	16.2	17.2			21.4	18.8
	H	18.2		13.0	13.5	22.2	47.1	38.4	37.3			10.7	9.4
Total		100.0^c	100.0	91.3	94.6	83.3	100.0	91.9	91.8		25.0	50.0	46.9
Predation	L			4.3	2.7			1.0	0.7			14.3	12.5
	H			4.3	2.7							3.6	3.1
Total				8.7	5.4			1.0	0.7			17.9	15.6

^a Fish with multiple injuries are reported separately for each injury cause.

^b L = Low; M = Moderate; H = High.

^c Percentage of total number of injuries.

The overall incidence of injuries in 2000 was highest in rainbow trout (28.5%) and considerably lower in brown trout and mountain whitefish (12.8 and 5.2%, respectively). These injury rates were higher than those recorded in 1999 (23.0%, 6.2%, and 3.0% for rainbow trout, brown trout, and mountain whitefish, respectively; RL&L 2000). The increase in injury rates may be attributed to more intensive recording procedures during the present sampling program and/or increased angling pressure in the lower section of the Bow River.

6.0 POPULATION ESTIMATES

Brown trout, rainbow trout, and mountain whitefish population estimates for the lower Bow River were calculated using both the Darroch estimator and the Null method (see Section 2.4.3). This allowed comparisons to the studies in 1982-1992 (Darroch estimator) and 1990-1992 (Null method). Both estimates were based on the same mark and recapture data (summarized in Table 6.1); they were calculated separately for each size-class and species. The detailed encounter histories generated from these data and used as input files for the MARK software are presented in Appendix C, Table C1.

Table 6.1 Number of fish marked and recaptured during fish population assessment in the Bow River, August 2000.

Species	Size-Class (mm FL)	Number of Fish Marked	Number of Recaptures	Recapture Rate (%)
Brown trout	150-250	116	4	3.4
	251-388	46	2	4.3
	>388	102	6	5.9
	Total	264	12	4.5
Rainbow trout	150-250	173	7	4.0
	251-380	44	2	4.5
	>380	189	20	10.6
	Total	406	29	7.1
Mountain whitefish	150-199	55	2	3.6
	200-280	268	14	5.2
	>280	276	21	7.6
	Total	599	37	5.4

In total, 264 brown trout, 406 rainbow trout, and 599 mountain whitefish were marked during the study. Recapture rates were similar between species and size-classes and ranged from 3.4% (brown trout 150-250 mm size-class) to 10.6% (rainbow trout >380 mm). Using all size-classes combined, the recapture rate was highest for rainbow trout (7.1% of marked fish), intermediate for mountain whitefish (5.4%), and lowest for brown trout (4.5%). The recapture rates for rainbow trout and mountain whitefish in 2000 were similar to those reported in 1999; however, the brown trout recapture rate in 2000 was approximately three times lower than in 1999 (12.1%; RL&L 2000). The reasons for this decrease in the brown trout recapture rate are unknown, but may be related to low flows and/or fish movements to other sections. The population estimates derived from the mark-recapture statistics are presented separately for each species in the following subsections.

6.1 BROWN TROUT

The population estimates for all size-classes of brown trout within the 4-km study section in the Bow River derived using both the Darroch and Null methods were very similar (2638 and 2696 fish, respectively; Table 6.2). The low recapture rate of 4.5% (Table 6.1) resulted in higher coefficients of variation (i.e., standard error as a percentage of the estimate) and wider 95% confidence intervals around the estimate than in previous studies. As in 1999, the brown trout population within the study section was primarily composed of juveniles between 150 and 250 mm and adults larger than 388 mm in fork length, with the intermediate size-class (251-388 mm) poorly represented. This bimodal distribution of the brown trout size-classes was also suggested by the length-frequency histogram (Figure 5.1).

Table 6.2 Brown trout population estimates for the Bow River, August 2000.

Method	Size-Class (mm FL)	Population Estimate	Standard Error	95% Conf. Int.		Capture Probability	Coefficient of Variation	Fish/km	Fish/ha
				Lower	Upper				
Darroch	150-250	1471	706	636	3655	-	48.0	368	40.3
	251-388	474	315	165	1598	-	66.5	119	13.0
	>388	807	310	412	1708	-	38.4	202	22.1
	All	2638	724	1588	4522	-	27.4	660	72.3
Null	150-250	1528	738	656	3816	0.0098	48.3	382	41.9
	251-388	480	323	165	1641	0.0125	67.3	120	13.1
	>388	814	315	414	1731	0.0166	38.7	204	22.3
	All	2696	747	1615	4646	0.0128	27.7	674	73.9

The 2000 brown trout population estimates are compared to the 1982-1992 and 1999 estimates (calculated by the Darroch method) in Figure 6.1 and to the 1990-1992 and 1999 estimates (calculated by the Null method) in Figure 6.2; the data used to generate these figures are summarized in Appendix C, Tables C2 and C3. Adult brown trout (>388 mm in fork length) appeared to have increased in abundance through the early 1980s and then decreased in the early 1990s. The current population estimate (202 fish/km) suggests that this size-class is nearly twice as abundant as the maximum estimate from previous years (117 fish/km in 1999; RL&L 2000). This increase was likely an artifact caused by lower recapture rates in 2000 relative to 1999 (5.9% and 14.8%, respectively). Contrary to the results of the population estimates, the CPUE values (Section 4.2) indicated a decrease in adult brown trout catch rates between 1999 and 2000. These differences may be related to a decrease in available holding habitat between 1999 and 2000 (i.e., due to reduced flows, large brown trout were moving out of the study area in search of suitable habitat).

The population estimates for the small and intermediate size-classes of brown trout (150-250 mm and 251-388 mm) indicated an increase in abundance in 2000 relative to 1999 by approximately three and four times, respectively. Although the magnitude of these increases in population size may be exaggerated due to lower recapture rates in 2000 compared to 1999, corresponding increases in CPUE values also suggest that juvenile brown trout did increase in abundance.

Brown trout

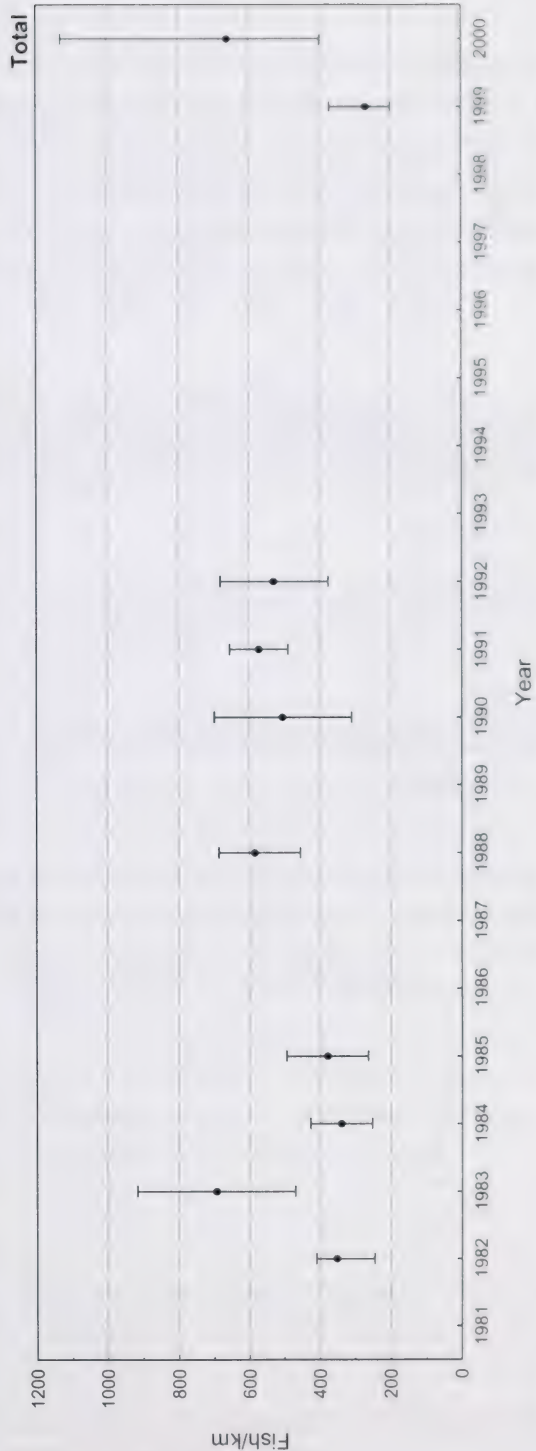
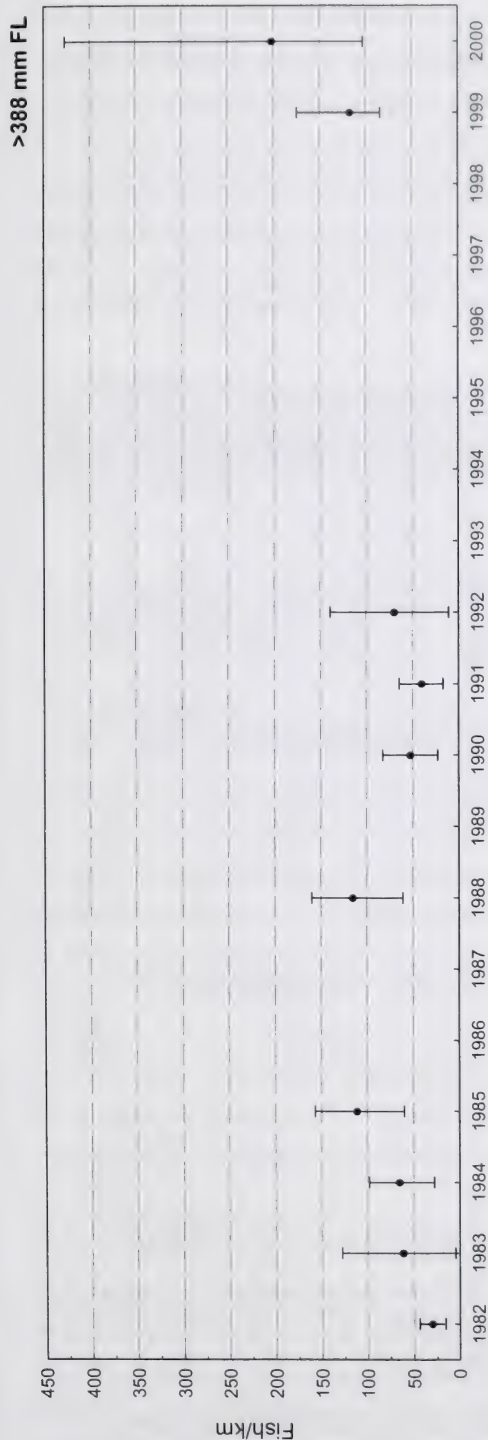


Figure 6.1 Comparison of brown trout population estimates ($\pm$ 95% confidence intervals) calculated using the Darroch method, 1982 to 2000 (note changes in y-axis scales).

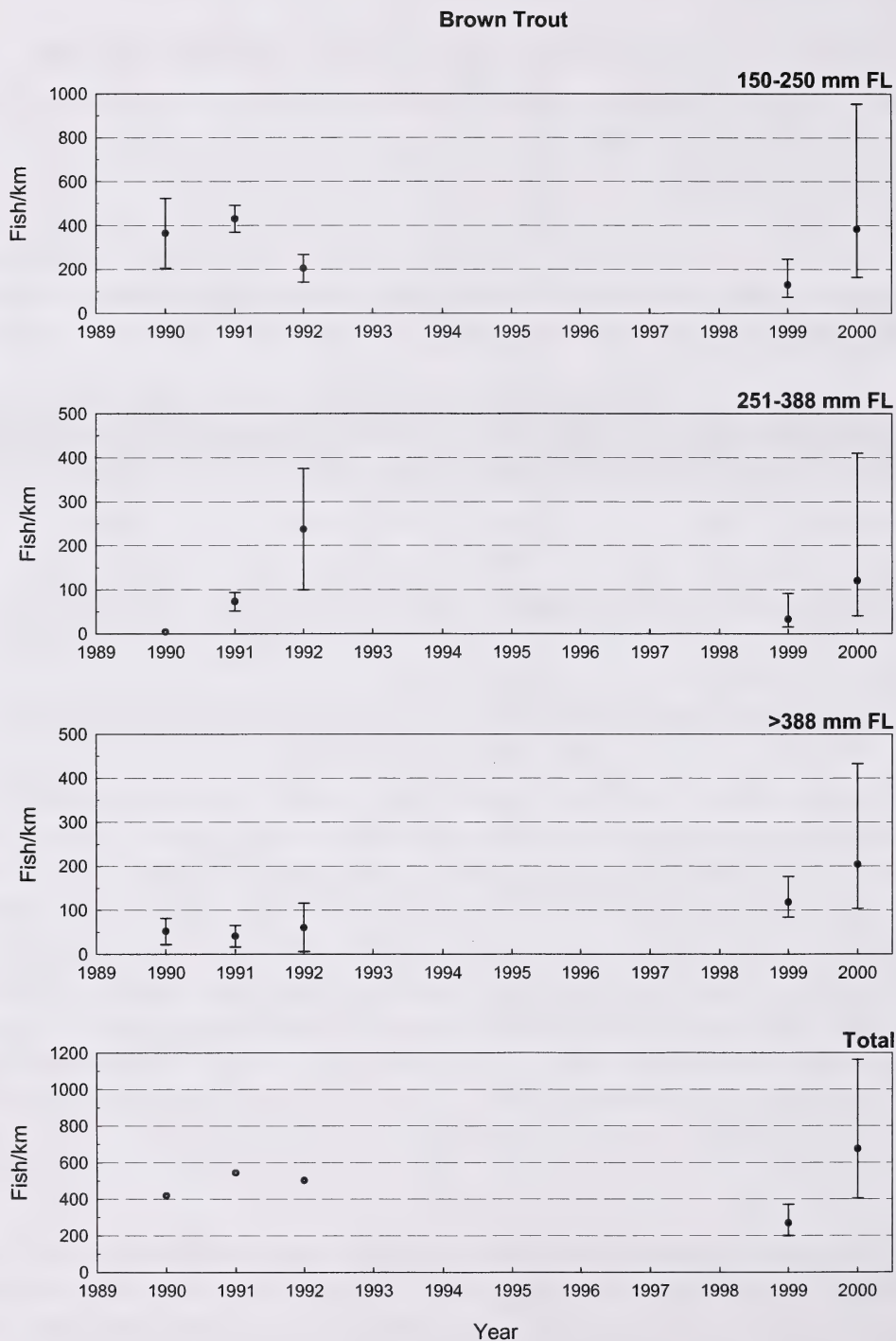


Figure 6.2 Comparison of brown trout population estimates ($\pm$ 95% confidence intervals) calculated using the Null method, 1990 to 2000 (note changes in y-axis scales).

6.2 RAINBOW TROUT

The 2000 population estimates for all size-classes of rainbow trout within the 4-km study section in the Bow River derived using both the Darroch and Null methods were very similar (2724 and 2735 fish, respectively; Table 6.3). Both estimates were considerably higher than those reported in 1999 (895 and 903, respectively; RL&L 2000). This increase was attributed mostly to the increased abundance of the small and intermediate size classes (150-380 mm), which were poorly represented in the catch in 1999. The current estimates indicate that the rainbow trout smaller than 380 mm in fork length contributed over 72% to the population within the study area; the corresponding proportion in 1999 was approximately 7%.

Table 6.3 Rainbow trout population estimates for the Bow River, August 2000.

Method	Size-Class (mm FL)	Population Estimate	Standard Error	95% Conf. Int.		Capture Probability	Coefficient of Variation	Fish/km	Fish/ha
				Lower	Upper				
Darroch	150-250	1903	673	1002	3782	-	35.4	476	52.1
	251-380	426	281	150	1429	-	66.0	107	11.7
	>380	893	182	618	1347	-	20.4	223	24.8
	All	2724	475	1965	3855	-	17.4	681	74.6
Null	150-250	1967	716	1018	3985	0.0114	36.4	492	53.9
	251-380	440	296	152	1503	0.0131	67.3	110	12.1
	>380	897	183	620	1355	0.0291	20.4	224	24.6
	All	2735	478	1972	3872	0.0199	17.5	684	74.9

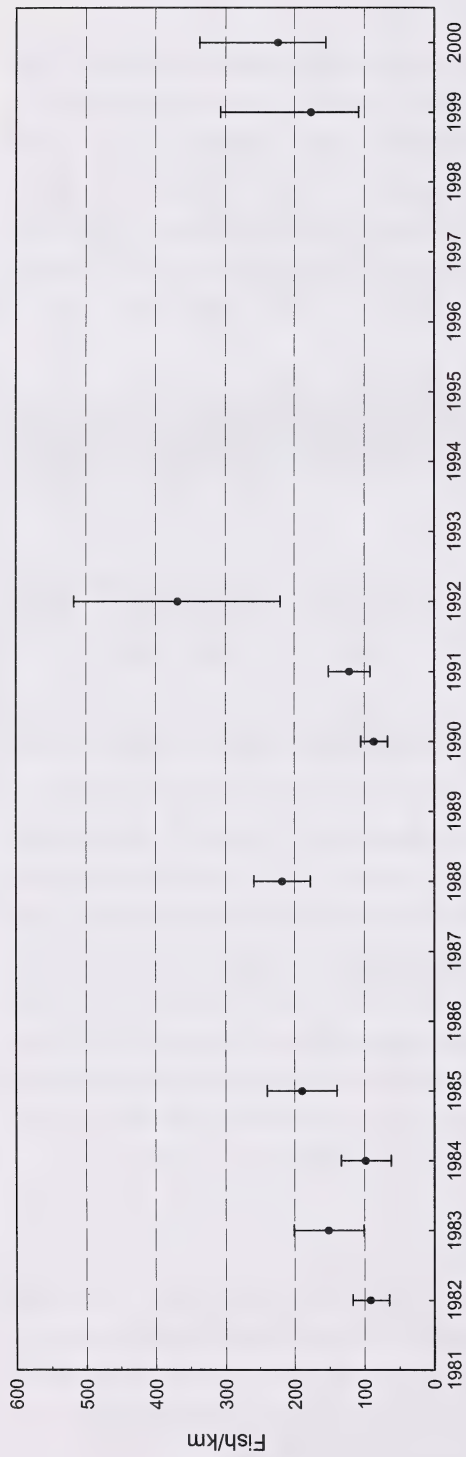
The 2000 rainbow trout population estimates are compared to the 1982-1992 and 1999 estimates (calculated by the Darroch method) in Figure 6.3 and to the 1990-1992 and 1999 estimates (calculated by the Null method) in Figure 6.4; the data used to generate these figures are summarized in Appendix C, Tables C2 and C3. The population estimates of rainbow trout in the small and intermediate size-classes were substantially higher in 2000 than in 1999. In contrast, the population estimate for adults was only slightly higher in 2000 than in 1999. The increase in population levels of the small and intermediate size-classes may be due to successful recruitment in 1999 and/or increased capture efficiency for small fish due to reduced flows encountered during the present study (see Section 3.0). The increase in the number of rainbow trout for each size-class between 1999 and 2000 is also supported by the corresponding increase in CPUE values (Section 4.2). The population estimate for all size-classes (684 fish/km), was within the range of population estimates recorded between 1990 and 1999 (298 to 1357 fish/km).

6.3 MOUNTAIN WHITEFISH

The population estimates for all size-classes of mountain whitefish within the 4-km study section in the Bow River derived using both the Darroch and Null methods were very similar (1143 and 1154 fish, respectively; Table 6.4). The 95% confidence intervals around the estimate were relatively wide due to the low recapture rate of 5.4% (Table 6.1). The current population estimates indicated that fish in the intermediate size-class (200-280 mm) were more abundant than fish larger than 280 mm.

Rainbow trout

>380 mm FL



Total

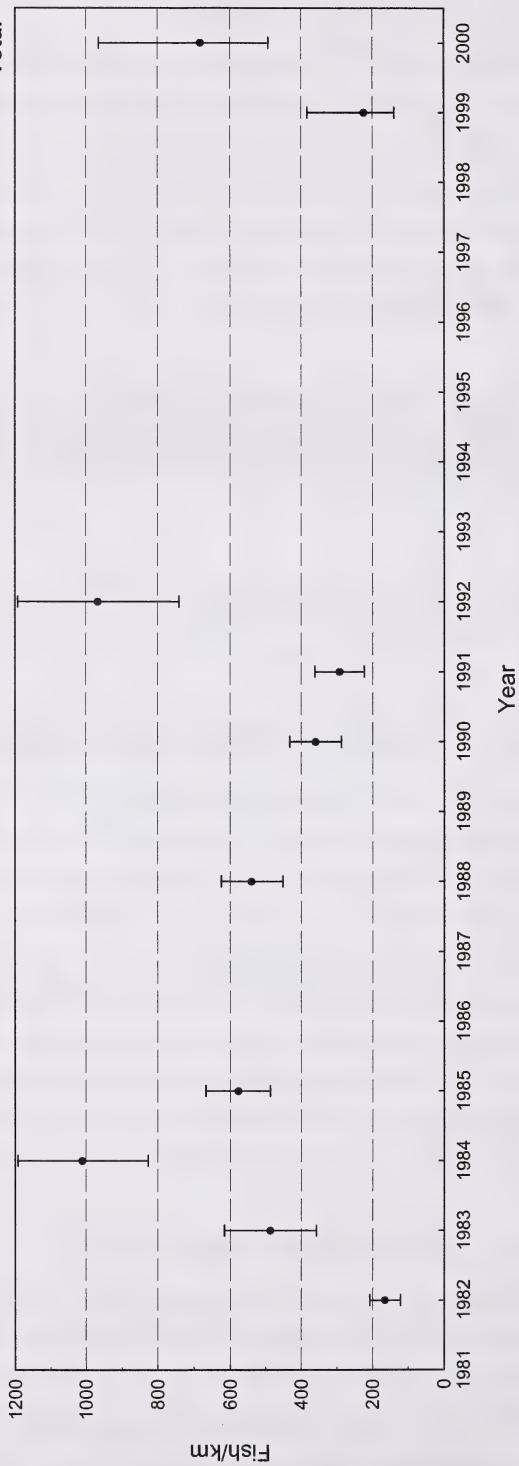


Figure 6.3 Comparison of rainbow trout population estimates ($\pm$ 95% confidence intervals) calculated using the Darroch method, 1982 to 2000.

Rainbow Trout

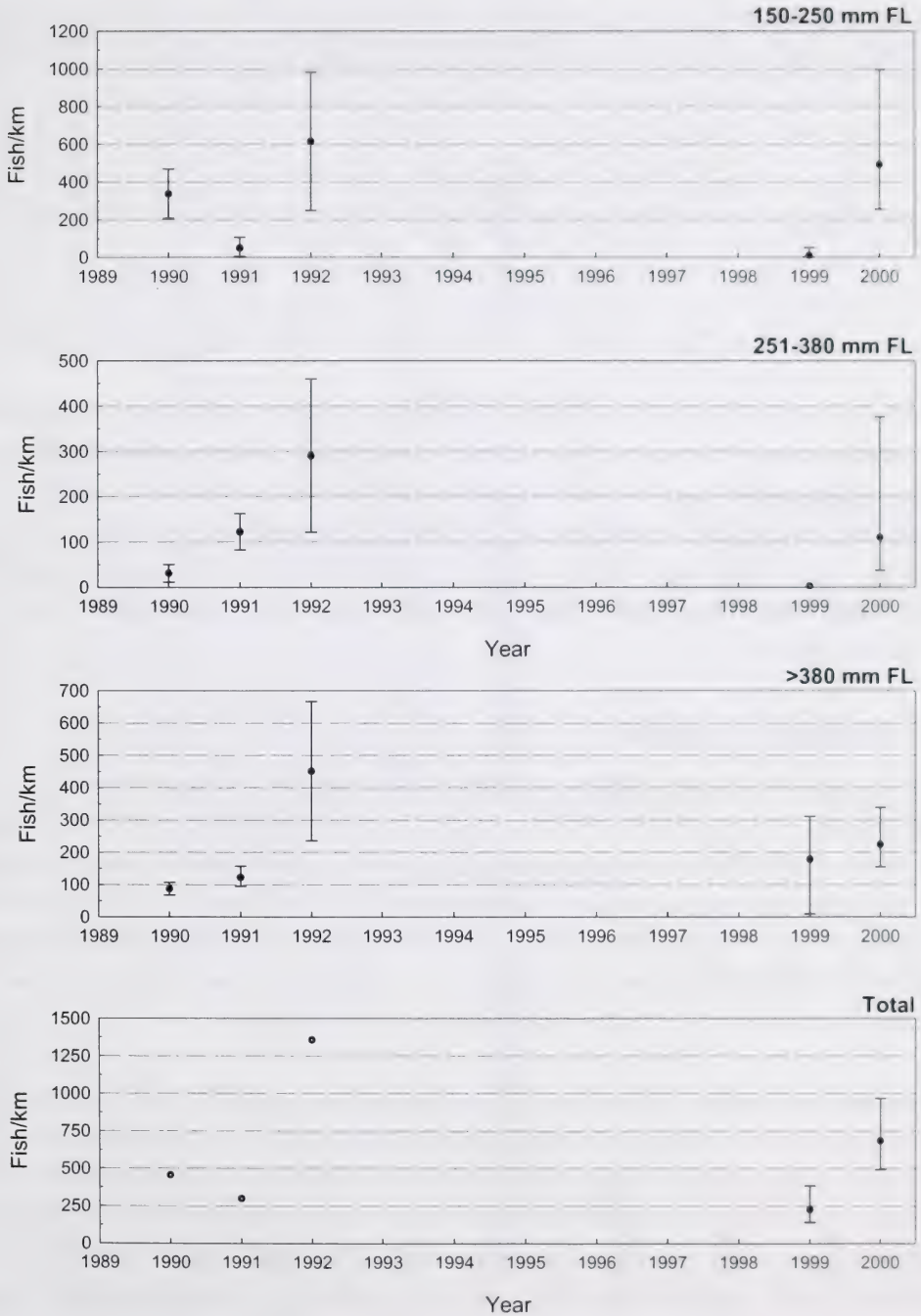


Figure 6.4 Comparison of rainbow trout population estimates ($\pm$ 95% confidence intervals) calculated using the Null method, 1990 to 2000 (note changes in y-axis scales).

Table 6.4 Mountain whitefish population estimates for the Bow River, August 2000.

Method	Size-Class (mm FL)	Population Estimate	Standard Error	95% Conf. Int.		Capture Probability	Coefficient of Variation	Fish/km	Fish/ha
				Lower	Upper				
Darroch	150-199	660	441	224	2227	-	66.8	165	18.1
	200-280	2361	600	1476	3899	-	25.4	590	64.7
	>280	1729	352	1187	2595	-	20.4	432	47.4
	All	4572	712	3404	6228	-	15.6	1143	125.2
Null	150-199	682	463	228	2337	0.0104	67.9	171	18.7
	200-280	2404	614	1499	3978	0.0147	25.5	601	65.9
	>280	1755	359	1203	2639	0.0211	20.5	439	48.1
	All	4617	720	3436	6293	0.0172	15.6	1154	126.5

The 2000 mountain whitefish population estimates calculated using the Darroch estimator and the Null method are compared to those from 1999 (Appendix C, Tables C2 and C3). Mountain whitefish population estimates for the large size-class (>280 mm in fork length) were higher in 2000 than in 1999, but were lower for the intermediate size-class (200-280 mm in fork length). The small size-class (150-199 mm in fork length) was not evaluated in 1999. The increase in the large size-class abundance between 1999 and 2000 was likely due to the passage of a strong 1998 cohort. This cohort likely contributed to the high abundance of intermediate size-class identified in 1999 and the large size-class in 2000.

6.4 FISH MOVEMENTS

One of the assumptions of population estimates derived through the mark-recapture methodologies is closure. This is defined as absence of fish movements out of the study area during the study period (White et al. 1982). The closure assumption was violated during the present study because the upstream and downstream boundaries of the study area were open to fish movement (i.e., they could not be physically blocked due to the large size of the river). To determine the potential effects of this violation on population estimates, movement of individual fish out of the study area was assessed on the basis of distance travelled between each marking and recapture event for all recaptured fish (identified through tag numbers or fin clips that corresponded to capture locations).

The majority of brown trout (91.7%), rainbow trout (72.4%), and mountain whitefish (59.5%) were recaptured within the same section where they were originally marked and released (Figure 6.5). One of 12 recaptured brown trout (8.3%) moved 2 km upstream of its release location. Eight of 29 rainbow trout were recaptured one to three kilometres away from the release locations; the direction of these movements appeared random (five upstream and three downstream). In contrast mountain whitefish movements showed a downstream trend with 35% of recaptures occurring one to three kilometres downstream of the original capture locations. Of note was one mountain whitefish originally tagged in the Carseland Canal on 11 October 1999 (Orange Floy Tag No. 1081). This fish was recaptured in the canal during the Trout Unlimited fish rescue operations and released in the Bow River on 20 October 1999, and subsequently recaptured in the present study area on 22 August 2000.

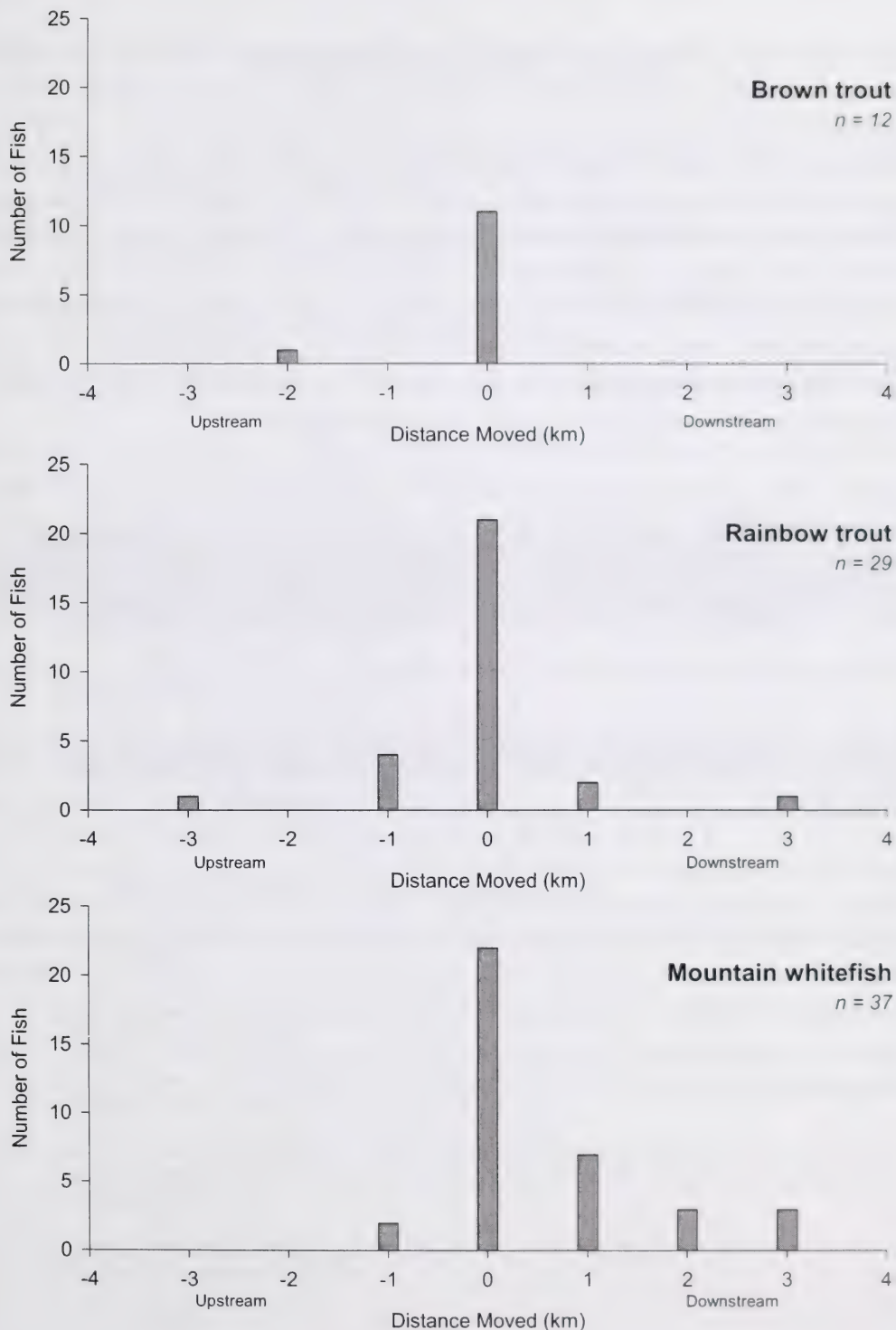


Figure 6.5 Distance moved by individual brown trout, rainbow trout, and mountain whitefish between release and recapture locations in the Bow River, August 2000.

The above movement results were obtained from fish that moved but remained within the study area (i.e., fish that moved out of the study area were not included in the calculations); therefore, they should be treated as indices of movement rather than direct estimates of movement. By assuming that the number of fish that leave the study area is proportional to the calculated movement indices of fish that remain within the study area, it was possible to estimate the number of fish that left the area during the study period (Table 6.5). In each study section, the number of fish that left the study area was based on the total number of fish marked in this section and the percent of fish that would have left as determined by the movement indices and the location of the section relative to the study area boundaries. For example, 8.3% of brown trout moved 2 km upstream from their release locations; therefore, this proportion was applied to the total number of fish marked in Sections 1 and 2 to calculate fish “escapes” through the upstream boundary (6 and 4 fish, respectively), but was not applied to fish marked in Section 3 because the upstream migrants could potentially be recaptured in Section 1 (still within the study area).

Table 6.5 Summary of fish movements out of the Bow River study area during fish population assessments, August 2000.

Section	Brown trout			Rainbow trout			Mountain whitefish		
	Total Marked	% Moved	Number Moved	Total Marked	% Moved	Number Moved	Total Marked	% Moved	Number Moved
1	75	8.3	6	92	17.2	16	136	5.4	7
2	53	8.3	4	70	6.9	5	101	8.1	8
3	57	0.0	0	107	6.9	7	232	16.2	38
4	79	0.0	0	137	10.3	14	130	35.1	46
Total	264		11	406		42	599		99
Mean % Moved	4.0			10.4			16.5		

Based on the above rationale, it was estimated that 4.0% of brown trout, 10.4% of rainbow trout, and 16.5% of mountain whitefish left the study area during the population assessment period. This out-migration would bias the population estimates upwards relative to the estimates that would have been obtained with total closure. However, because the previous studies reported similar indices of trout movement out of the study area during 1990-1999 (2 to 8% for brown trout, 6 to 13% for rainbow trout, 17% for mountain whitefish), the biases caused by out-migration were relatively constant. As such, they would have little effect on the overall trends in population estimates recorded during the past decade.

7.0 LITERATURE CITED

- Courtney, R.F., and D.A. Fernet. 1989. Bow River trout population studies, fall 1988. Unpublished Fish and Wildlife Report. Alberta Energy and Natural Resources.
- Courtney, R.F., and D.A. Fernet. 1990. A critical analysis of the Bow River trout population studies 1980-1988. Memo Report Prepared for Fish and Wildlife Division.
- Courtney, R.F., and D.A. Fernet. 1991. Bow River trout population studies, 1990. Unpublished Report for Fish and Wildlife Division, Alberta Forestry, Lands and Wildlife. 26 p.
- Courtney, R.F. 1993. Bow River trout population studies, 1992. Alberta Forestry, Lands and Wildlife, Fish and Wildlife Division.
- Environment Canada. 1996. HYDAT version 4.94 - Hydrology data base to 1995. CD-ROM developed by Climate and Water Products Division, Downsview, Ontario.
- Fernet, D.A., R.F. Courtney, and A.J. Sosiak. 1988. Bow River trout population studies, fall 1985. Unpublished Fish and Wildlife Report Alberta Energy and Natural Resources.
- Helwig, J.J., and R.F. Courtney. 1993. Bow River trout population studies, 1991. Unpublished Report for Fish and Wildlife Division, Alberta Forestry, Lands and Wildlife. 38 p.
- Otis, D.L., K.P. Burnham, G.C. White, and D.R. Anderson. 1978. Statistical inference from capture data on closed populations. Wildlife Monograph 62. 135 p.
- Ricker, W.E. 1975. Computation and interpretation of biological statistics of fish populations. Fisheries Research Board of Canada Bulletin 191. Department of Fisheries and Oceans, Ottawa. 382 p.
- RL&L Environmental Services Ltd. 2000. Lower Bow River fish population status assessment - August 1999. Prepared for Alberta Environment. RL&L Report No. 769: 33 p. + 3 app.
- Snyder, D.E. 1995. Impacts of electrofishing on fish. Fisheries 20(1): 26-27.
- Sosiak, A.J., and W.E. Griffiths. 1983. Bow River trout population studies, fall 1980-1982. Alberta Energy and Natural Resources.
- Sosiak, A.J. 1984. Bow River trout population studies, fall 1983. Unpublished Fish and Wildlife Report Alberta Energy and Natural Resources.
- Sosiak, A.J., D.A. Fernet, and R.F. Courtney. 1988. Bow River trout population studies, fall 1984. Unpublished Fish and Wildlife Report. Alberta Energy and Natural Resources.
- White, G.C., D.R. Anderson, K.P. Burnham and D.L. Otis. 1982. Capture-recapture and removal methods for sampling closed populations, Publication LA-8787-NERP. Los Alamos National Laboratory, Los Alamos, New Mexico. 235 pp.
- White, G.C. and K. P. Burnham. 1999. Program MARK: Survival estimation from populations of marked animals. Bird Study 46 Supplement, 120-138.

APPENDIX A

Raw Data for Captured Fish

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture		Encounter	Injuries		Ageing Structure	Age (yr)	Comments
											Date	Sec.		Cause ^c	Loc ^d			
4	21	1	1	S	BLTR	290	303	300		2904			00000000					
1	23	2	1	N	BLTR	250	262	170		3312			00000000					
3	24	1	2	N	BLTR	261	275	200		3313			00000000					
2	24	2	1	S	BLTR	250	262	135	X	3312			00000000					
24	21	1	1	N	BNTR	212	224	120		2702			10000000					
71	21	1	1	S	BNTR	232	240	150		2905			10000100					
111	21	1	1	S	BNTR	247	254	180			N	N	10000000					
141	21	1	1	S	BNTR	258	268	255		2903			10000000					
340	21	1	1	S	BNTR	491	502	1445		2305			10000000					
262	21	1	1	S	BNTR	524	542	1895		2312			10000000					Originally tagged last year
125	21	1	2	N	BNTR	251	263	205		2705			10000000					Originally tagged last year
203	21	1	2	N	BNTR	418	431	1025		2703			10000000					
208	21	1	2	N	BNTR	429	442	1020		2706			10000000					
81	21	1	2	S	BNTR	236	246	140		2914			10000000					
224	21	1	2	S	BNTR	473	480	1460		2908			10000000					
238	21	1	2	S	BNTR	480	485	1365		2907			10000000					
255	21	1	2	S	BNTR	513	523	1560		2906			10000000					
181	21	1	3	N	BNTR	397	408	835		2707			10000000					
118	21	1	3	S	BNTR	212	221	125		2932			10000000					
151	21	1	3	S	BNTR	249	255	185		2931			10000100					
159	21	1	3	S	BNTR	265	277	240		2924			10000000					
42	21	1	3	S	BNTR	342	351	530		2720			10000000					
210	21	1	4	N	BNTR	430	451	940		2710			10000000					
254	21	1	4	N	BNTR	512	530	1470		2711			10000000					
278	21	1	4	N	BNTR	571	580	1935		2717			10000000					
44	21	1	4	S	BNTR	223	231	170		2948			10000000					
94	21	1	4	S	BNTR	240	247	175		2946			10000000					
156	21	1	4	S	BNTR	283	291	280		2947			10000000					
160	21	1	4	S	BNTR	368	380	590		2679			10000000					
188	21	1	4	S	BNTR	402	412	800		2944			10000000					
193	21	1	4	S	BNTR	405	421	815		2943			10000000					
207	21	1	4	S	BNTR	428	433	765		2942			10000000					
256	21	1	4	S	BNTR	514	525	1930		2945			10000000					
5	21	2	1	N	BNTR	178	181	65			N	N	01000000					
22	21	2	1	N	BNTR	209	214	120		2736			01000000					
41	21	2	1	N	BNTR	221	232	130		2729			01000000					
53	21	2	1	N	BNTR	227	235	135		2743			01000000					
62	21	2	1	N	BNTR	228	234	170		2741			01000000					
60	21	2	1	N	BNTR	228	237	145		2739			01100000					
65	21	2	1	N	BNTR	230	241	155		2722			01000000					
85	21	2	1	N	BNTR	237	243	165		2726			01000000					
102	21	2	1	N	BNTR	245	254	190		2734			01000000					
174	21	2	1	N	BNTR	390	402	660		2732			01000000					
182	21	2	1	N	BNTR	397	405	725		2730			01000000					
216	21	2	1	N	BNTR	459	462	1240		2728			01000000					
15	21	2	1	S	BNTR	204	211	115			N	N	01000000					
45	21	2	1	S	BNTR	223	230	135		2973			01000000					
95	21	2	1	S	BNTR	240	249	210		2961			01000000					
103	21	2	1	S	BNTR	245	254	170		2962			01000000					
104	21	2	1	S	BNTR	245	256	180		2967			01000000					

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Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture		Clip @ Release		Encounter	Injuries			Ageing Structure	Age (yrs)	Comments
											Date	Set	Date	Set		Cause ^c	Loc ^d	Sev ^e			
175	21	2	1	S	BNTR	390	394	700		2952					01000000						
191	21	2	1	S	BNTR	404	419	890		2966					01000000				Scale	3	
197	21	2	1	S	BNTR	410	422	885		2953					01000000				Scale	5	
229	21	2	1	S	BNTR	480	490	1430		2963					01000000				Scale	6	
248	21	2	1	S	BNTR	505	516	1520		2964					00000000						
265	21	2	1	S	BNTR	530	504	2040							01000000						
34	21	2	2	N	BNTR	217	225	130		2757					01000000						
54	21	2	2	N	BNTR	227	234	140		2759					01000000						
66	21	2	2	N	BNTR	230	237	185		2756					01000000						
81	21	2	2	N	BNTR	235	245	185		2758					01000000	H	J	L			
131	21	2	2	N	BNTR	254	262	215		2755					01000000						
134	21	2	2	N	BNTR	255	264	210		2754					01000000						
274	21	2	2	N	BNTR	542	556	2005		2744					01000000				Scale	2	
8	21	2	2	S	BNTR	190	201	75			N	N	A	2	01000000				Scale		
70	21	2	2	S	BNTR	230	235	170		2988					01000000						
236	21	2	2	S	BNTR	485	502	1355		2091					01000000						
245	21	2	2	S	BNTR	494	500	1705		2587					01000000						
21	21	2	3	N	BNTR	208	216	125		2771					01000000						
46	21	2	3	N	BNTR	224	230	130		2772					01000000	H	J	L			
117	21	2	3	N	BNTR	249	260	205		2773					01000000	H	J	M			
146	21	2	3	N	BNTR	260	271	220		2761					01000000	H	J	M			
187	21	2	3	N	BNTR	401	412	870		2763					01000000	H	J	M			
200	21	2	3	N	BNTR	412	418	915		2762					01000000	H	J	L			
39	21	2	3	S	BNTR	220	233	145			N	N	A	3	01000000						
89	21	2	3	S	BNTR	238	244	165		3044					01000000						
96	21	2	3	S	BNTR	240	248	205		3043					01000000						
101	21	2	3	S	BNTR	244	250	210		3039					01000000				Scale	2	
142	21	2	3	S	BNTR	258	266	245		3041					01000000				Scale	2	
157	21	2	3	S	BNTR	284	295	285		3036					01000000				Scale	5	
242	21	2	3	S	BNTR	492	510	1535		2993					01000000				Scale	6	
273	21	2	3	S	BNTR	540	544	2030		2995					01000001				Scale	6	
279	21	2	3	S	BNTR	586	593	2220		3027					01000000				Scale	6	
55	21	2	4	S	BNTR	227	236	155		2778					01000000						
150	21	2	4	S	BNTR	265	277	255		2780					01000000						
78	21	2	4	S	BNTR	234	244	175		3065					01000000						
99	21	2	4	S	BNTR	242	250	170		3082					01000000						
122	21	2	4	S	BNTR	250	256	190		3068					01000000						
143	21	2	4	S	BNTR	259	265	210		3075					01000000						
149	21	2	4	S	BNTR	264	274	225		3069					01000000						
152	21	2	4	S	BNTR	265	270	235		3072					01000000						
204	21	2	4	S	BNTR	420	427	925		3050					01000000						
239	21	2	4	S	BNTR	490	500	1435		3045					01000000						
20	22	1	1	S	BNTR	208	219	120		2736					00000000						
61	22	1	1	N	BNTR	228	240	145	X	2739					00000000						
35	22	1	1	N	BNTR	218	239	135	X	2789					00100000						
36	22	1	1	N	BNTR	218	230	120		2800					00100000				Scale	2	
56	22	1	1	N	BNTR	227	240	155		2797					00100000				Scale	2	
67	22	1	1	N	BNTR	230	241	145		2795					00100000				Scale		
121	22	1	1	N	BNTR	250	261	220		2788					00100000				Scale		
140	22	1	1	N	BNTR	258	266	210		2791					00100000				Scale	2	
219	22	1	1	N	BNTR	468	471	1170		2250					00100000						
281	22	1	1	N	BNTR	624	631	2435		2786					00100000						
12	22	1	1	S	BNTR	203	213	90			N	N	B	1	00100000				Scale		

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg. - 00)	Run	Section	Bank	Species	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Clip @		Encounter	Injuries		Ageing Structure	Age (yr)	Comments
										Capture	Release		Cause	Loc			
230	22	1	1	S	BNTR	480	489	1305		3096		00100000			Scale	4	
6	22	1	2	N	BNTR	180	186	70		N	N	2			Scale	1	LNDC in mouth
97	22	1	2	S	BNTR	240	246	170				00100000			Scale	2	
136	22	1	2	S	BNTR	257	267	205		3351		00100000			Scale	2	
266	22	1	3	N	BNTR	531	534	2060		3100		00100000			Scale	3	
165	22	1	3	S	BNTR	380	381	740		3358		00100000			Scale	3	
176	22	1	3	S	BNTR	390	403	835		3359		00100000			Scale	3	
195	22	1	3	S	BNTR	405	415	775		3360		00100000			Scale	5	
234	22	1	3	S	BNTR	481	497	1305		3366		00100000			Scale	5	
238	22	1	3	S	BNTR	487	496	1560		3355		00100000			Scale	6	
359	22	1	3	S	BNTR	520	523	1895		3357		00100000	H	J	Scale	7	
269	22	1	3	S	BNTR	534	546	1810		3354		00100000			Scale	1	
271	22	1	3	S	BNTR	535	556	1705		3353		00100000			Scale	1	
68	22	1	4	N	BNTR	230	239	145		2836		00100000			Scale	4	
69	22	1	4	N	BNTR	230	238	165		2840		00100000			Scale	4	
179	22	1	4	N	BNTR	393	404	775		2828		00100000			Scale	4	
58	22	1	4	S	BNTR	227	235	160		3392		00100000			Scale	1	
91	22	1	4	S	BNTR	239	246	200		3388		00100000			Scale	1	
117	22	1	4	S	BNTR	257	267	210		3389		00100000			Scale	1	
158	22	1	4	S	BNTR	288	297	305		3390		00100000			Scale	1	
312	22	1	4	S	BNTR	437	445	1155		3386		00100000			Scale	1	
250	22	1	4	S	BNTR	508	525	1590		3387		00100000			Scale	1	
9	22	2	1	N	BNTR	191	197	100		N	N	1			Scale	1	
11	22	2	1	N	BNTR	202	209	105		2858		00100000			Scale	1	
25	22	2	1	N	BNTR	212	220	115		2843		00100000			Scale	1	
76	22	2	1	N	BNTR	233	240	165		2857		00100000			Scale	1	
183	22	2	1	N	BNTR	397	404	850		2853		00100000			Scale	1	
215	22	2	1	N	BNTR	450	457	1070		2847		00101000			Scale	1	
63	22	2	1	S	BNTR	228	235	140		3409		00100000			Scale	1	
127	22	2	1	S	BNTR	251	258	185		3405		00100000			Scale	1	
163	22	2	1	S	BNTR	379	385	715		3399		00100000			Scale	1	
170	22	2	1	S	BNTR	384	395	715		3404		00100000			Scale	1	
178	22	2	1	S	BNTR	392	410	695		3406		00100000			Scale	1	
252	22	2	1	S	BNTR	510	532	1720		3402		00100000			Scale	1	
86	22	2	2	N	BNTR	237	244	175		2876		00100000			Scale	1	
132	22	2	2	N	BNTR	254	260	225		2874		00100000			Scale	1	
147	22	2	2	N	BNTR	261	269	250		2877		00100000			Scale	1	
218	22	2	2	N	BNTR	463	470	1335		2870		00100000			Scale	1	
227	22	2	2	N	BNTR	478	481	1370		2867		00100000			Scale	1	
14	22	2	2	N	BNTR	204	210	85		3429		00100000			Scale	1	
17	22	2	2	S	BNTR	205	215	100		N	N	2			Scale	1	
18	22	2	2	S	BNTR	205	210	115		N	N	2			Scale	1	
26	22	2	2	S	BNTR	212	222	115		3428		00100000			Scale	1	
93	22	2	2	S	BNTR	239	249	215		3430		00100000			Scale	1	
155	22	2	2	S	BNTR	282	290	325		3426		00100000			Scale	1	
190	22	2	2	S	BNTR	403	420	820		3427		00100000			Scale	1	
192	22	2	2	S	BNTR	404	416	775		3423		00100000			Scale	1	
225	22	2	2	S	BNTR	475	494	1350		3424		00100000			Scale	1	
231	22	2	2	S	BNTR	480	495	1470		3425		00100000			Scale	1	
280	22	2	2	S	BNTR	600	603	2520		3421		00100000			Scale	1	
19	22	2	3	N	BNTR	207	212	125		2891		00100000			Scale	1	
30	22	2	3	N	BNTR	215	224	130		2886		00100000			Scale	1	
55	22	2	3	N	BNTR	227	234	130		2886		00100000			Scale	1	

Tag# 3410-Lost

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Lac ^d Scr ^e	Ageing Structure	Age (yrs)	Comments
38	22	2	3	S	BNTR	220	230	135		3441			00010000				
205	22	2	3	S	BNTR	420	430	985		3440			00010000				
246	22	2	3	S	BNTR	495	500	1440		3438			00010000				
31	22	2	4	N	BNTR	215	224	115		3118			00010000				
37	22	2	4	N	BNTR	218	226	125		3115			00010000				
49	22	2	4	N	BNTR	225	230	125		3108			00010000				
71	22	2	4	N	BNTR	230	239	155		3119			00010000				
105	22	2	4	N	BNTR	245	252	170		3117			00010000				
43	22	2	4	S	BNTR	222	230	155		3478			00010000				
64	22	2	4	S	BNTR	228	235	155		3477			00010000				
72	22	2	4	S	BNTR	230	240	175		3476			00010000				
124	22	2	4	S	BNTR	250	260	200		3480			00010000				
144	22	2	4	S	BNTR	259	271	230		3479			00010000				
186	22	2	4	S	BNTR	400	410	810		3481			00010000				
198	22	2	4	S	BNTR	412	420	910		2556			00010001				
232	22	2	4	S	BNTR	480	482	1315		3482			00010000				
235	22	2	4	S	BNTR	482	495	1315		3483			00010000				
10	23	1	1	N	BNTR	200	206	95		3122			00001000				
13	23	1	1	N	BNTR	204	215	115		3130			00001000				
32	23	1	1	N	BNTR	215	227	110		3129			00001000				
74	23	1	1	N	BNTR	232	245	165		3126			00001000				
79	23	1	1	N	BNTR	234	246	180		3125			00001000				
106	23	1	1	N	BNTR	245	258	210		3128			00001000				
33	23	1	1	S	BNTR	216	233	130		3496			00001000				
87	23	1	1	S	BNTR	237	248	165		3497			00001000				
171	23	1	1	S	BNTR	384	395	665		3486			00001000				
233	23	1	1	S	BNTR	480	490	1225		3488			00001000				
257	23	1	1	S	BNTR	516	524	1470		3491			00001000				
277	23	1	2	S	BNTR	570	580	2115		3490			00001000				
247	23	1	2	N	BNTR	500	510	1670		3146			00001000				
100	23	1	2	S	BNTR	243	252	180		3204			00001000				
109	23	1	2	S	BNTR	246	254	175		3205			00001000				
211	23	1	2	S	BNTR	435	447	915		3203			00001000				
237	23	1	2	S	BNTR	485	495	1295		3207			00001000				
261	23	1	2	S	BNTR	523	531	1615		3201			00001000				
114	23	1	3	N	BNTR	248	258	180		3161			00001000				
47	23	1	3	S	BNTR	224	235	135		3232	N	C	00001000				
110	23	1	3	S	BNTR	246	255	190		3192	N	C	00001000				
253	23	1	4	N	BNTR	511	521	1630					00001000				
135	23	1	4	S	BNTR	234	240	185		3246			00001000				
153	23	1	4	S	BNTR	256	265	150		3233			00001000				
154	23	1	4	S	BNTR	265	275	265		3245			00001000				
177	23	1	4	S	BNTR	271	281	200		3240			00001000				
213	23	1	4	S	BNTR	392	397	720		3239			00001000				
243	23	1	4	S	BNTR	440	452	1245		3234			00001000				
272	23	1	4	S	BNTR	492	504	1370		3235			00001000				
226	23	2	1	N	BNTR	539	553	1845		3309			00000100				
214	23	2	1	S	BNTR	476	489	1210		2847			00000000				
77	23	2	1	S	BNTR	449	470	1055	X	2905			00000000				
172	23	2	1	S	BNTR	234	242	170	X	3263			00000100				
189	23	2	1	S	BNTR	385	395	700		3251			00000100				
209	23	2	1	S	BNTR	402	441	900		3252			00000100				
						429	446	1015									

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @		Encounter	Injuries		Age (yr)	Comments
											Capture	Release		Cause ^c	Loc ^d		
											Date	Date					
221	23	2	1	S	BNTR	470	484	1340		3253	N	N	00000100	H	J	L	5
29	23	2	2	S	BNTR	213	222	125					00000100				
123	23	2	2	S	BNTR	250	259	205		3268			00000100				Tag Loss # 3271, 3272
209	23	2	2	S	BNTR	507	514	1560		3273			00000100				
251	23	2	2	S	BNTR	510	515	1630		3269			00000100				
206	23	2	3	N	BNTR	427	435	1080		3336			00000100	H	J	L	6
119	23	2	3	S	BNTR	249	256			2932			00000000				Nose Tip.
80	23	2	3	S	BNTR	225	232	145			N	N	00000100				
84	23	2	3	S	BNTR	236	245	190		3282	N	C	00000100				
148	23	2	3	S	BNTR	262	271	240		3280	N	C	00000100	H	J	L	Left Mandible Gone
162	23	2	3	S	BNTR	371	386	635		3279			00000110	H	J	L	
169	23	2	3	S	BNTR	384	400	745		3276			00000100	H	J	L	
222	23	2	3	S	BNTR	405	410	785		3277			00000101				Recap within day
241	23	2	4	S	BNTR	491	508	1340	X	3234			00000000				
126	23	2	4	S	BNTR	251	259	245		3297			00000100				
185	23	2	4	S	BNTR	400	410	830		3295			00000100				Escaped - excluded from estimate
267	23	2	4	S	BNTR	532	544	1795		3292			00000101				
282	23	2	4	S	BNTR			1805					00000000				
59	24	1	1	N	BNTR	228	238	145		2606			00000010				
217	24	1	1	N	BNTR	461	478	1315		2604	N	D	00000010	H	J	L	Left Eye Gone
7	24	1	1	S	BNTR	182	191	70					00000010				
196	24	1	1	S	BNTR	410	413	825		2406	N	D	00000010				
16	24	1	2	S	BNTR	204	212	100					00000010				
184	24	1	3	N	BNTR	399	412	845		2621			00000010	H	J	M	Right Maxillae.
201	24	1	3	N	BNTR	414	429	900		2651			00000000				
167	24	1	3	S	BNTR	381	395	715	X	3279			00000000				
107	24	1	3	S	BNTR	245	254	195			N	D	00000010				
344	24	1	3	S	BNTR	493	505	1505		2420			00000010				
258	24	1	3	S	BNTR	520	528	1685		2422			00000010				
38	24	1	4	S	BNTR	212	222	125			N	D	00000010				
40	24	1	4	S	BNTR	220	231	165			N	D	00000010				
48	24	1	4	S	BNTR	224	231	140			N	D	00000010				
52	24	1	4	S	BNTR	226	235	160			N	D	00000010				
88	24	1	4	S	BNTR	237	247	170			N	D	00000010				
90	24	1	4	S	BNTR	238	249	150			N	D	00000010				
113	24	1	4	S	BNTR	248	257	180		2533			00000010				
130	24	1	4	S	BNTR	253	259	195		2534			00000010				
133	24	1	4	S	BNTR	255	261	205		2532			00000010				
139	24	1	4	S	BNTR	258	270	215		2535			00000011				
180	24	1	4	S	BNTR	397	412	795		2531			00000010				
116	24	2	1	N	BNTR	249	261	175		2667			00000001				
51	24	2	1	S	BNTR	226	233	175		2503			00000001				
202	24	2	1	S	BNTR	415	430	915		2501			00000001				
363	24	2	1	S	BNTR	525	535	1900		2502			00000001				
368	24	2	2	S	BNTR	532	545	1745	X	3292			00000000				MALE
108	24	2	2	S	BNTR	245	253	195			N	D	00000001	H	J	L	Blind Eye
138	24	2	2	S	BNTR	251	260	205			N	D	00000001				
129	24	2	2	S	BNTR	252	265	210		2514			00000001				
166	24	2	2	S	BNTR	381	385	655		2510			00000001				
168	24	2	2	S	BNTR	382	391	660		2509			00000001				
229	24	2	3	N	BNTR	468	482	1190	X	2631			00000001				Right Maxillae.
276	24	2	3	S	BNTR	550	553	1985		2995			00000000				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @		Encounter	Injuries		Ageing Structure	Age (yrs)	Comments
											Capture Date	Release Date		Cause ^c	Loc ^d	Sex ^e		
223	24	2	3	S	BNTR	472	480	1525	X	3276	N	D	00000000					
75	24	2	3	S	BNTR	232	241	175		2434	N	D	00000001				3	
120	24	2	3	S	BNTR	250	260	245		2432	N	D	00000001				5	
164	24	2	3	S	BNTR	380	391	750		2431	N	D	00000001				2	
173	24	2	3	S	BNTR	390	403	755		2430	N	D	00000001					
270	24	2	3	S	BNTR	535	545	1735		2639	N	D	00000001					
23	24	2	4	N	BNTR	212	223	110		2638	N	D	00000001					
98	24	2	4	N	BNTR	241	251	175		2535	N	D	00000001					
145	24	2	4	S	BNTR	260	270	225	X	2556	N	D	00000000					Recap within day
199	24	2	4	S	BNTR	412	418	905	X		N	D	00000000					
82	24	2	4	S	BNTR	235	242	175			N	D	00000001					
93	24	2	4	S	BNTR	239	247	185			N	D	00000001					
112	24	2	4	S	BNTR	247	255	205			N	D	00000001					
115	24	2	4	S	BNTR	248	255	205			N	D	00000001					
138	24	2	4	S	BNTR	257	266	210			N	D	00000001					
161	24	2	4	S	BNTR	370	387	680			N	D	00000001					
260	24	2	4	S	BNTR	520	530	1800			N	D	00000001					
264	24	2	4	S	BNTR	525	529	1625			N	D	00000001					
275	24	2	4	S	BNTR	546	553	1930			N	D	00000001					
286	23	2	1	S	BURB	640	630	1630			N	D	00000000					
284	23	2	4	S	BURB	530	533	1000		2640	N	D	00000000					
285	24	2	4	N	BURB	533	533	875			N	D	00000000					
283	24	2	4	S	BURB	455	530	530			N	D	00000000					
287	23	2	1	S	LNSC	514	1960				N	D	00000000					
519	21	1	1	N	MNWH	228	245	165			N	A	1					
683	21	1	1	N	MNWH	305	330	500			N	A	1					
290	21	1	1	S	MNWH	160	174	50			N	A	1					
338	21	1	1	S	MNWH	195	211	85			N	A	1					
727	21	1	2	N	MNWH	319	345	540			N	A	1					
304	21	1	2	S	MNWH	178	194	80			N	A	2					
830	21	1	2	S	MNWH	395	421	1200		2913	N	A	2					Tag #3106
288	21	1	3	S	MNWH	155	169	40			N	A	3					
298	21	1	3	N	MNWH	175	193	70			N	A	3					
313	21	1	3	N	MNWH	183	200	75			N	A	3					
363	21	1	3	N	MNWH	201	218	110			N	A	3					
400	21	1	3	N	MNWH	209	225	125			N	A	3					
431	21	1	3	N	MNWH	213	230	135			N	A	3					
436	21	1	3	N	MNWH	214	232	145			N	A	3					
551	21	1	3	N	MNWH	234	252	190			N	A	3					
569	21	1	3	N	MNWH	239	255	220			N	A	3					
573	21	1	3	N	MNWH	240	258	200			N	A	3					
594	21	1	3	N	MNWH	264	283	250			N	A	3					
291	21	1	3	N	MNWH	163	179	45			N	A	3					
302	21	1	3	S	MNWH	177	191	80			N	A	3					
305	21	1	3	S	MNWH	178	190	70			N	A	3					
332	21	1	3	S	MNWH	194	203	105			N	A	3					
379	21	1	3	S	MNWH	204	222	135			N	A	3					
438	21	1	3	S	MNWH	214	232	145			N	A	3					
476	21	1	3	S	MNWH	221	240	140		2925	N	A	3					
643	21	1	3	S	MNWH	290	312	400		2921	N	A	3					
664	21	1	3	S	MNWH	300	321	425		2917	N	A	3					
732	21	1	3	S	MNWH	320	343	515		2919	N	A	3					
740	21	1	3	S	MNWH	322	344	610		2923	N	A	3					Tag Lost

Snum 303=305
Snum 332=331

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c Loc ^d Sex ^e	Aging Structure	Age (yrs)	Comments
861	21	1	3	S	MNWH	407	437	1500		2922			10000000				
896	21	1	3	S	MNWH	422	442	1345		2916	N	A	4				
314	21	1	4	N	MNWH	184	199	65			N	A	4				
915	21	1	4	N	MNWH	430	455	1145		2716	N	A	4				
129	21	1	4	S	MNWH	190	205	100			N	A	4				
477	21	1	4	S	MNWH	221	237	160		2941	N	A	1				
342	21	2	1	N	MNWH	198	213	110			N	A	1				
382	21	2	1	N	MNWH	205	217	110			N	A	1				
440	21	2	1	N	MNWH	215	228	130		2740	N	A	1				
462	21	2	1	N	MNWH	220	235	160		2735	N	A	1				
550	21	2	1	N	MNWH	234	246	175		2733	N	A	1				
671	21	2	1	N	MNWH	301	317	470		2723	N	A	1				
817	21	2	1	N	MNWH	390	436	1185		2731	N	A	1				
299	21	2	1	S	MNWH	175	187	70			N	A	1				
108	21	2	1	S	MNWH	180	195	90			N	A	1				
139	21	2	1	S	MNWH	195	210	90			N	A	1				
365	21	2	1	S	MNWH	202	222	120		2958	N	A	1				
458	21	2	1	S	MNWH	219	235	140		2972	N	A	1				
481	21	2	1	S	MNWH	222	242	160		2959	N	A	1				
656	21	2	1	S	MNWH	296	321	390		2954	N	A	1				
795	21	2	1	S	MNWH	372	400	1120		2960	N	A	1				
872	21	2	1	S	MNWH	412	451	1270		2956	N	A	1				
902	21	2	1	S	MNWH	426	460	1475		2955	N	A	1				
135	21	2	2	N	MNWH	195	207	95			N	A	2				
657	21	2	2	N	MNWH	297	316	450		2749	N	A	2				
678	21	2	2	N	MNWH	303	324	485		2752	N	A	2				
688	21	2	2	N	MNWH	309	321	490		2747	N	A	2				
762	21	2	2	N	MNWH	345	365	680		2750	N	A	2				
776	21	2	2	N	MNWH	360	381	775		2748	N	A	2				
833	21	2	2	N	MNWH	397	420	1115		2746	N	A	2				
836	21	2	2	N	MNWH	398	419	1220		2745	N	A	2				
117	21	2	2	S	MNWH	211	231	145		2987	N	A	2				
495	21	2	2	S	MNWH	224	240	160		2978	N	A	2				
531	21	2	2	S	MNWH	230	245	185		2986	N	A	2				
561	21	2	2	S	MNWH	237	254	220		2991	N	A	2				
617	21	2	2	S	MNWH	275	296	310		2989	N	A	2				
619	21	2	2	S	MNWH	289	315	415		2982	N	A	2				
665	21	2	2	S	MNWH	300	324	500		2985	N	A	2				
717	21	2	2	S	MNWH	315	337	550		2974	N	A	2				
718	21	2	2	S	MNWH	315	339	520		2980	N	A	2				
770	21	2	2	S	MNWH	354	384	785		2984	N	A	2				
789	21	2	2	S	MNWH	370	398	850		2983	N	A	2				
792	21	2	3	N	MNWH	165	175	40			N	A	3				
797	21	2	3	N	MNWH	174	183	50			N	A	3				
901	21	2	3	N	MNWH	177	184	70			N	A	3				
119	21	2	3	N	MNWH	187	207	80			N	A	3				
143	21	2	3	N	MNWH	198	210	90			N	A	3				
161	21	2	3	N	MNWH	220	235	145			N	A	3				
191	21	2	3	N	MNWH	223	235	215		2769	N	A	3				
181	21	2	3	N	MNWH	250	263	215		2768	N	A	3				
442	21	2	3	N	MNWH	290	310	370		2767	N	A	3				
179	21	2	3	S	MNWH	202	215	90			N	A	3				
169	21	2	3	S	MNWH	220	235	175			N	A	3				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank *	Species *	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @		Encounter	Injuries			Ageing Structure	Age (yrs)	Comments
											Date	Sect.		Cause, ^c	Loc, ^d	Se, ^e			
506	21	2	3	S	MNVH	225	240	165			N	N	01000000						
576	21	2	3	S	MNVH	241	257	240		3038		A	3	01000000					
644	21	2	3	S	MNVH	290	305	345		3037				01000000					
694	21	2	3	S	MNVH	310	330	540		3035				01000000					
719	21	2	3	S	MNVH	315	339	495		2999				01000000					
761	21	2	3	S	MNVH	344	369	735		3031				01000000					
771	21	2	3	S	MNVH	354	377	725		3033				01000000					
777	21	2	3	S	MNVH	360	385	820		2994				01000000	Scale	3			
814	21	2	3	S	MNVH	388	410	1185		3000				01000000					
885	21	2	3	S	MNVH	416	446	1405		2997				01000000					
921	21	2	3	S	MNVH	432	456	1395		2998				01000000					
932	21	2	3	S	MNVH	441	470	1635		3026				00000000					
941	21	2	3	S	MNVH	465	494	1945		2996				01000000					
916	21	2	4	N	MNVH	430	445		X	2716	A	3		00000000				Mortality	
331	21	2	4	N	MNVH	193	206	75	X					00000000				Snum 332=331	
296	21	2	4	N	MNVH	170	182	60				A	3,4	01000000					
336	21	2	4	N	MNVH	195	210	75				A	4	01000000					
366	21	2	4	S	MNVH	202	218	115		3078				01000000					
375	21	2	4	S	MNVH	204	220	110		3077				01000000					
376	21	2	4	S	MNVH	204	220	100		3079				01000000					
435	21	2	4	S	MNVH	214	225	120		3076				01000000					
456	21	2	4	S	MNVH	218	233	145		3067				01000000					
500	21	2	4	S	MNVH	225	244	140		3071				01000000					
501	21	2	4	S	MNVH	225	242	145		3073				01100000	Scale				
527	21	2	4	S	MNVH	229	240	180		3049				01000000					
532	21	2	4	S	MNVH	230	248	180		3074				01000000					
596	21	2	4	S	MNVH	265	276	150		3064				01000000					
608	21	2	4	S	MNVH	270	291	310		3062				01000000					
710	21	2	4	S	MNVH	314	333	605		3061				01000000					
744	21	2	4	S	MNVH	323	346	425		3063				01000000					
755	21	2	4	S	MNVH	339	361	655		3066				01000000					
831	21	2	4	S	MNVH	395	420	1110		3047				01000000					
930	21	2	4	S	MNVH	440	460	1585		3048				01000000					
457	22	1	1	N	MNVH	219	238	150	X	2735				00000000					
487	22	1	1	N	MNVH	223	238	130		2793				00100000	Scale				
513	22	1	1	N	MNVH	227	241	160		2794				00100000	Scale				
570	22	1	1	N	MNVH	240	257	205		2799				00100100	Scale				
593	22	1	1	N	MNVH	263	285	290		2790				00100000					
708	22	1	1	N	MNVH	313	336	515		2783				00100000					
716	22	1	1	N	MNVH	315	334	510		2782				00100000					
878	22	1	1	N	MNVH	415	441	1440		2787				00110000	Scale	6			
346	22	1	1	S	MNVH	199	214	110			N	N		00100000	Scale	1			
420	22	1	1	S	MNVH	211	225	130			N	N		00100000	Scale				
478	22	1	1	S	MNVH	221	241	145			N	N		00100000	Scale				
659	22	1	1	S	MNVH	297	320	450		3092				00100000	Scale				
676	22	1	1	S	MNVH	303	322	460		3091			1	00100000	Scale	3		Tag # 3091 Lost	
746	22	1	1	S	MNVH	326	350	600		3090				00100000	Scale	2		Tag # 3089 Lost	
870	22	1	1	S	MNVH	411	444	1405		3087				00100000	Scale	4			
906	22	1	1	S	MNVH	427	465	1605		3086				00100000	Scale	7			
925	22	1	1	S	MNVH	435	471	1410		3088				00100000	Scale	6			
426	22	1	2	N	MNVH	213	222	100		2815				00110000	Scale	6			
615	22	1	2	N	MNVH	275	286	320		2810				00100000	Scale	3			
616	22	1	2	N	MNVH	275	292	300		2813				00100000	Scale				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg. mo)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Sex ^e	Ageing Structure	Age (yrs)	Comments
655	22	1	2	N	MNWH	296	307	430		2812			00101000		Scale	2	
680	22	1	2	N	MNWH	305	328	475		2807			00100000		Scale	2	
756	22	1	2	N	MNWH	340	368	700		2808			00100000		Scale	4	
799	22	1	2	N	MNWH	373	398	880		2804			00100000		Scale	3	
818	22	1	2	N	MNWH	390	428	1295		2803			00100010		Scale	6	
829	22	1	2	N	MNWH	395	422	1200		2801			00100000	H J	Scale		
838	22	1	2	N	MNWH	399	435	1220		2802			00100000		Scale		
864	22	1	2	N	MNWH	410	439	1235		2805			00100000	H J	Scale	13	
141	22	1	2	S	MNWH	197	215	105			N	B	2		Scale		
645	22	1	2	S	MNWH	290	300	350		3099			00100000		Scale	4	Originally Tagged at Carseland Canal Headgates
647	22	1	2	S	MNWH	292	312	380		1081			00100000		Scale		
120	22	1	3	N	MNWH	188	201	85				B	3		Scale	1	
167	22	1	3	N	MNWH	202	212	100				B	3		Scale		
195	22	1	3	N	MNWH	208	216	110				B	3		Scale		
196	22	1	3	N	MNWH	208	222	120				B	3		Scale	1	
408	22	1	3	N	MNWH	210	222	105		2822			00100000		Scale	1	
418	22	1	3	N	MNWH	211	225	140				B	3		Scale	1	
464	22	1	3	N	MNWH	220	235	155		2825			00100000		Scale	1	
753	22	1	3	N	MNWH	336	359	520		2819			00100000	H J	Scale	2	
819	22	1	3	N	MNWH	390	410	1355		2818			00100000		Scale		
851	22	1	3	S	MNWH	404	426	1280		2820			00100000		Scale	5	
109	22	1	3	S	MNWH	175	190	65			N	B	3		Scale		
181	22	1	3	S	MNWH	181	195	70			N	B	3		Scale		
268	22	1	3	S	MNWH	268	288	270		3375			00100000		Scale		
310	22	1	3	S	MNWH	310	335	525		3376			00100000		Scale		
312	22	1	3	S	MNWH	312	334	500		3377			00100000		Scale		
405	22	1	3	S	MNWH	405	435	1310		3372			00100000		Scale		
406	22	1	3	S	MNWH	406	439	1195		3374			00100000		Scale		
414	22	1	3	S	MNWH	414	445	1315		3373			00100100		Scale		
440	22	1	3	S	MNWH	440	472	1420		3371			00100000		Scale		
916	22	1	3	S	MNWH	447	482	1600		3364			00100000		Scale		
224	22	1	4	N	MNWH	224	239	150	X	3073			00000000		Scale		Shum 344=370
198	22	1	4	N	MNWH	198	211	105	X		A	3	A B 3.4		Scale	1	Shum 348=345=364
189	22	1	4	N	MNWH	189	200	70				B	4		Scale		
189	22	1	4	N	MNWH	189	206	120				B	4		Scale		
201	22	1	4	N	MNWH	190	201	80				B	4		Scale		
201	22	1	4	N	MNWH	201	214					B	4		Scale		
209	22	1	4	N	MNWH	209	220	75				B	4		Scale		
213	22	1	4	N	MNWH	213	227	120				B	4		Scale		
218	22	1	4	N	MNWH	218	234	115		2834			00100000		Scale		
224	22	1	4	N	MNWH	224	230	105		2831			00100000		Scale		
230	22	1	4	N	MNWH	230	244	165		2838			00100000		Scale	1	
399	22	1	4	N	MNWH	399	424	1260		2829			00100000		Scale		
418	22	1	4	N	MNWH	418	444	1370		2833			00100000		Scale	5	
430	22	1	4	N	MNWH	430	464	1570		2826			00100000		Scale	6	
445	22	1	4	N	MNWH	445	476	1685		2835			00100000	H J	Scale	6	
204	22	1	4	S	MNWH	204	223	135		2830			00100000		Scale		
208	22	1	4	S	MNWH	208	229	120			N	B	4		Scale		
209	22	1	4	S	MNWH	209	225	155			N	B	4		Scale		
210	22	1	4	S	MNWH	210	227	160			N	B	4		Scale		
212	22	1	4	S	MNWH	212	232	155			N	B	4		Scale		
223	22	1	4	S	MNWH	223	240	180		3397			00100000		Scale		

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Sev ^e	Ageing Structure	Age (yrs)	Comments
609	22	1	4	S	MNVH	270	292	300		3396			00100000				
635	22	1	4	S	MNVH	284	310	370		3393			00100000				
701	22	1	4	S	MNVH	310	325	420		3394			00100000				
707	22	1	4	S	MNVH	312	338	475		3395			00100000				
786	22	1	4	S	MNVH	365	396	805		3378			00000000	E	B	L	Recap within day
879	22	2	1	N	MNVH	415	441	1460		2787			00000000				
434	22	2	1	N	MNVH	214	230	130		2848			00010000				
497	22	2	1	N	MNVH	225	239	160		2852			00010000				
568	22	2	1	N	MNVH	239	255	185		2845			00010000				
820	22	2	1	N	MNVH	390	417	1020		2846			00010000				
842	22	2	1	N	MNVH	401	409	1075		2849			00010000	E	E	H	
866	22	2	1	N	MNVH	410	425	1555		2860			00010000				
871	22	2	1	N	MNVH	412	439	1425		2859	N	N	00010100	H	J	L	
421	22	2	1	S	MNVH	200	214	115			N	B	00010000				
423	22	2	1	S	MNVH	211	228	130			N	B	00010000				
466	22	2	1	S	MNVH	212	227	145		3415			00010000				
541	22	2	1	S	MNVH	220	236	145		3413			00010000				
597	22	2	1	S	MNVH	231	250	175		3420			00010000				
603	22	2	1	S	MNVH	265	282	260		3419			00010000				
631	22	2	1	S	MNVH	268	289	260		3416			00010000				
672	22	2	1	S	MNVH	281	307	380		3414			00010000				
691	22	2	1	S	MNVH	292	314	440		3417			00010001				
793	22	2	1	S	MNVH	301	326	565		3398			00010000				
441	22	2	1	S	MNVH	309	331	510		3418			00010000				
514	22	2	2	N	MNVH	371	400	910		3407			00010000				
723	22	2	2	N	MNVH	215	231	135		2875			00010000				
745	22	2	2	N	MNVH	227	239	175		2873			00010000				
853	22	2	2	N	MNVH	317	336	560		2864			00010000				
862	22	2	2	N	MNVH	325	344	585		2865			00010000				
867	22	2	2	N	MNVH	337	363	730		2866			00000000				
451	22	2	2	N	MNVH	405	431	1110		2862			00010100	H	J	M	Mortality tag 2868
467	22	2	2	N	MNVH	408	425	1340		2861			00010000				
490	22	2	2	N	MNVH	410	432	1355		2861			00010000				
310	22	2	2	S	MNVH	216	221	130		2815	N	N	00000000				
428	22	2	2	S	MNVH	182	200	90				B	00010000				
467	22	2	2	S	MNVH	220	238	155		3433			00010000				
490	22	2	2	S	MNVH	223	240	180		3432			00010000				
326	22	2	3	N	MNVH	327	352	620		3431			00010010				
388	22	2	3	N	MNVH	190	204	120				B	00010000				
398	22	2	3	N	MNVH	206	218	135		3103			00010000				
429	22	2	3	N	MNVH	209	226	135		2894			00010000				
428	22	2	3	N	MNVH	213	230	140		2895			00010000				
442	22	2	3	N	MNVH	213	225	150		2892			00010100				
488	22	2	3	N	MNVH	215	231	160		2897			00010000				
515	22	2	3	N	MNVH	223	238	145		2882			00010000				
517	22	2	3	N	MNVH	225	245	130		2881			00010000				
525	22	2	3	N	MNVH	227	245	160		2885			00010000				
526	22	2	3	N	MNVH	228	243	170		2883			00010000				
653	22	2	3	N	MNVH	229	249	185		2889			00010000				
743	22	2	3	N	MNVH	229	246	185		2898			00010000				
868	22	2	3	N	MNVH	295	310	415		3101			00000000				
	22	2	3	N	MNVH	323	347	620		2888			00010000				
	22	2	3	N	MNVH	410	430	1280		2880			00010000				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Sex ^e	Aging Structure	Age (yr)	Comments
294	22	2	3	S	MNWH	165	179	50			N	N	00010000				
353	22	2	3	S	MNWH	200	216	105			N	N	00010000				
381	22	2	3	S	MNWH	204	219	100			N	N	00010000				
410	22	2	3	S	MNWH	210	224	120			N	N	00010000				
507	22	2	3	S	MNWH	225	242	165			N	N	00010000				
565	22	2	3	S	MNWH	238	255	230		3458	N	N	00010000				
598	22	2	3	S	MNWH	265	284	310		3452	N	N	00010000				
604	22	2	3	S	MNWH	268	294	295		3451	N	N	00010000				
610	22	2	3	S	MNWH	270	291	325		3453	N	N	00010000				
637	22	2	3	S	MNWH	285	304	320		3459	N	N	00010000				
662	22	2	3	S	MNWH	299	320	400		3457	N	N	00010000				
668	22	2	3	S	MNWH	300	324	470		3450	N	N	00010000				
686	22	2	3	S	MNWH	307	333	495		3455	N	N	00010000				
692	22	2	3	S	MNWH	309	329	440		3456	N	N	00010000				
739	22	2	3	S	MNWH	321	344	530		3454	N	N	00010000				
741	22	2	3	S	MNWH	322	346	640		3448	N	N	00010000				
778	22	2	3	S	MNWH	360	386	830		3449	N	N	00010000				
811	22	2	3	S	MNWH	384	415	1070		3447	N	N	00010000				
844	22	2	3	S	MNWH	401	422	1250		3446	N	N	00010000				
858	22	2	3	S	MNWH	405	435	1190		3444	N	N	00010000				
911	22	2	3	S	MNWH	428	452	1225		3445	N	N	00010000				
917	22	2	3	S	MNWH	450	474	1590		3442	N	N	00010110				
939	22	2	3	S	MNWH	451	488	1775		3443	N	N	00010000				
916	22	2	4	N	MNWH	211	120	120	X	2834	A	2	00000000				Recap within day
658	22	2	4	N	MNWH	297	315	400	X	2954	B	4	00010000				
595	22	2	4	N	MNWH	285	286	250	X	3062			00000000				
733	22	2	4	N	MNWH	320	345	515	X	3106			00000000				Tagged at recapture. Snum = 727
348	22	2	4	N	MNWH	200	215	105	X				00000000				Recap within day Snum 348=345+364
306	22	2	4	N	MNWH	180	193						00010000				
316	22	2	4	N	MNWH	185	195	65					00010000				
362	22	2	4	N	MNWH	201	211	100		3109			00010000				
306	22	2	4	N	MNWH	210	227	130		3110			00010000				
518	22	2	4	N	MNWH	228	244	155		3116			00010000				
543	22	2	4	N	MNWH	232	248	190		3120			00010000				
666	22	2	4	N	MNWH	300	320	405		3107			00010000				
373	22	2	4	S	MNWH	202	216	120			N	N	00010000				
311	22	2	4	S	MNWH	210	228	115			N	N	00010000				
360	22	2	4	S	MNWH	219	239	135			N	N	00010000				
376	22	2	4	S	MNWH	220	238	125			N	N	00010000				
373	22	2	4	S	MNWH	220	235	145			N	N	00010000				
502	22	2	4	S	MNWH	225	245	140		3475	N	N	00010000				
589	22	2	4	S	MNWH	259	280	245		3474	N	N	00010000				
307	23	1	1	N	MNWH	180	193	65				C	00001000		1		Scale
633	23	1	1	N	MNWH	183	301	310		3121		C	00010000		2		Scale
328	23	1	1	S	MNWH	189	205	70			N	N	00001000				
488	23	1	1	S	MNWH	205	226	115			N	C	00001000				
312	23	1	1	S	MNWH	210	225	100			N	C	00001000				
680	23	1	1	S	MNWH	266	289	260		3494	N	C	00001000				
812	23	1	1	S	MNWH	384	413	950		3492	N	C	00001000				
940	23	1	1	S	MNWH	455	491	1630		3493	N	C	00001000				
100	23	1	2	N	MNWH	204	223	110		3141			00001000				
304	23	1	2	N	MNWH	208	220	120		3142			00001000				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture		Clip @ Release		Encounter	Injuries			Ageing Structure	Age (yrs)	Comments
											Date	Sect.	Date	Sect.		Cause ^c	Loc ^d	Sev ^e			
454	23	1	2	N	MNWH	217	235	135		3139					00001000				Scale	1	
544	23	1	2	N	MNWH	232	245	175		3137					00001000				Scale		
613	23	1	2	N	MNWH	274	293	285		3138					00001000				Scale		
711	23	1	2	N	MNWH	314	339	560		3136					00001000				Scale	4	
790	23	1	2	N	MNWH	370	393	1085		3134					00001000				Scale	6	
809	23	1	2	N	MNWH	384	408	1165		3135					00001001				Scale	7	
821	23	1	2	N	MNWH	390	417	985		3140					00001000				Scale	5	
854	23	1	2	N	MNWH	405	435	1475		3132					00001000				Scale	6	
909	23	1	2	N	MNWH	428	458	1360		3133					00001000				Scale		
660	23	1	2	S	MNWH	298	320	445	X	2812					00000000						
430	23	1	2	S	MNWH	213	232	145		3211					00001000						
482	23	1	2	S	MNWH	222	240	140		3209					00001000				Scale	1	
545	23	1	2	S	MNWH	232	242	150		3210					00001000				Scale	2	
612	23	1	2	S	MNWH	273	292	310		3202					00001000				Scale	2	
685	23	1	2	S	MNWH	306	328	515		3208					00001000						
724	23	1	2	S	MNWH	317	342	575			N	N	C	2	00001000				Scale	8	
533	23	1	2	S	MNWH	424	456	1565		3499					00001000						
554	23	1	3	N	MNWH	230	246	195		3153					00001000				Scale		
562	23	1	3	N	MNWH	235	252	170		3148					00001000						
571	23	1	3	N	MNWH	236	249	170		3159					00001000						
577	23	1	3	N	MNWH	240	258	180		3160					00001000						
624	23	1	3	N	MNWH	242	261	205		3154					00001000						
625	23	1	3	N	MNWH	279	301	380		3147					00001000				Scale	2	
630	23	1	3	N	MNWH	279	302	350		3150					00001000				Scale		
721	23	1	3	N	MNWH	315	338	575		3158					00000000					Mortality	
734	23	1	3	N	MNWH	320	342	535		3149					00001000				Scale	4	
757	23	1	3	N	MNWH	340	365	940		3162					00001000						
791	23	1	3	N	MNWH	370	395	910		3164					00001000						
806	23	1	3	N	MNWH	380	406	1075		3156					00001000						
822	23	1	3	N	MNWH	390	413	1005		3151					00001000						
855	23	1	3	N	MNWH	402	431	1210		3152					00000000	E				Mortality	
885	23	1	3	N	MNWH	405	435	1495		3155					00001000	E					
920	23	1	3	N	MNWH	431	462	1605							00001000						
333	23	1	3	S	MNWH	194	210	70			N	N	C	3	00001000						
354	23	1	3	S	MNWH	200	215	85			N	N	C	3	00001000						
386	23	1	3	S	MNWH	205	222	110			N	N	C	3	00001000						
390	23	1	3	S	MNWH	206	222	105			N	N	C	3	00001000						
391	23	1	3	S	MNWH	207	223	110			N	N	C	3	00001000						
404	23	1	3	S	MNWH	209	226	110			N	N	C	3	00001000						
485	23	1	3	S	MNWH	222	240	145			N	N	C	3	00001000						
508	23	1	3	S	MNWH	225	242	150			N	N	C	3	00001000						
536	23	1	3	S	MNWH	230	250	160			N	N	C	3	00001000						
555	23	1	3	S	MNWH	235	252	160			N	N	C	3	00001000						
556	23	1	3	S	MNWH	235	252	165							00001000						
578	23	1	3	S	MNWH	242	263	190							00001000				Scale	2	
621	23	1	3	S	MNWH	277	300	370		3223					00001000				Scale		
623	23	1	3	S	MNWH	278	300	365		3229					00001000						
632	23	1	3	S	MNWH	282	302	305		3222					00001000						
697	23	1	3	S	MNWH	310	334	445		3226					00001000						
736	23	1	3	S	MNWH	320	340	555		3224					00001000						
735	23	1	3	S	MNWH	320	345	570		3219					00001010				Scale		
779	23	1	3	S	MNWH	361	388	835		3214					00001001				Scale	3	

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug. 00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c Loc ^d Sex ^e	Aging Structure	Age (yrs)	Comments
783	23	1	3	S	MNWH	363	385	865		3213			00001000		Scale	4	
800	23	1	3	S	MNWH	373	398	965		3218			00001000		Scale	4	Mortality - Male
898	23	1	3	S	MNWH	424	449	1370		3216			00000000		Scale		
910	23	1	3	S	MNWH	428	468	1400		3220			00001000		Scale	6	
923	23	1	3	S	MNWH	434	460	1520		3217			00000000		Scale		Shum 348=345=364
934	23	1	4	N	MNWH	198	212	110	X		B	4	00001000				
109	23	1	4	N	MNWH	209	225	135		3171			00001000				
444	23	1	4	N	MNWH	215	236	145		3174			00001000				
452	23	1	4	N	MNWH	216	235	135		3168			00001000				
465	23	1	4	N	MNWH	220	245	150		3169			00001000				
552	23	1	4	N	MNWH	234	254	220				C	00001000				May not live
572	23	1	4	N	MNWH	240	259	190		3190			00001000				
591	23	1	4	N	MNWH	260	277	270					00001000				
601	23	1	4	N	MNWH	267	286	275		3170			00001000				
695	23	1	4	N	MNWH	310	334	485		3167			00001000				
772	23	1	4	N	MNWH	357	382	660		3173			00001000				
782	23	1	4	N	MNWH	362	386	720		3177			00001000				
785	23	1	4	N	MNWH	365	388	965		3172			00001000				
796	23	1	4	N	MNWH	372	402	1515		3180			00001010				
890	23	1	4	N	MNWH	415	440	1535		3175			00001000				
891	23	1	4	N	MNWH	420	450	1535		3176			00001000				
413	23	1	4	S	MNWH	210	224	130			N	N	00001000				
537	23	1	4	S	MNWH	230	246	165			N	N	00001000				
558	23	1	4	S	MNWH	235	252	195			N	N	00001000				
681	23	1	4	S	MNWH	305	322	490		3241			00001000				
841	23	2	1	N	MNWH	400	432	1015	X	2866			00000000				Left maxillae Tag # 3197 destroyed
883	23	2	1	N	MNWH	405	422	120				C	00001000				
408	23	2	1	N	MNWH	220	237	125				C	00001000				
586	23	2	1	N	MNWH	255	278	235				C	00000100				
627	23	2	1	N	MNWH	279	302	420		3306			00000100				
651	23	2	1	N	MNWH	294	318	405		3304			00000100				
751	23	2	1	N	MNWH	333	356	715		3193			00000101				
764	23	2	1	N	MNWH	346	374	900		3302			00000100				
797	23	2	1	N	MNWH	372	399	1065		3195			00000100				
802	23	2	1	N	MNWH	377	402	955		3194			00000100				
815	23	2	1	N	MNWH	388	413	970		3305			00000100				
869	23	2	1	N	MNWH	410	435	1390					00000000				Mortality
881	23	2	1	N	MNWH	415	443	138E		3198			00000100				Left maxillae Tag # 3195 destroyed Tagging gun broke. No mark applied.
912	23	2	1	N	MNWH	428	449	1160					00000000				Mortality
913	23	2	1	N	MNWH	429	455	1555					00000000				Mortality
919	23	2	1	S	MNWH	430	456	1550	X				00000000				Read within day Shum 366=347
947	23	2	1	S	MNWH	199	214	105			C	1	00000000				
100	23	2	1	S	MNWH	195	211	100			N	N	00000100				
155	23	2	1	S	MNWH	200	216	125			N	N	00000100				
156	23	2	1	S	MNWH	200	216	80			N	N	00000100				
422	23	2	1	S	MNWH	211	230	155			N	N	00000100				
432	23	2	1	S	MNWH	213	230	130			N	N	00000100				
439	23	2	1	S	MNWH	214	230	140			N	N	00000100				
509	23	2	1	S	MNWH	225	243	165			N	N	00000100				
511	23	2	1	S	MNWH	226	244	165			N	N	00000100				
516	23	2	1	S	MNWH	227	247	165			N	N	00000100				
553	23	2	1	S	MNWH	234	252	215			N	N	00000100				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @		Encounter	Injuries		Ageing Structure	Age (yrs)	Comments
											Date	Seal		Cause ^c	Loc ^d	Sex ^e		
559	23	2	1	S	MNVH	235	252	185			N	N	00000100					
592	23	2	1	S	MNVH	260	281	280			N	N	00000100					
619	23	2	1	S	MNVH	276	298	370		3250		C	00000100					
698	23	2	1	S	MNVH	310	329	545				C	00000100					
703	23	2	1	S	MNVH	311	334	510		3262			00000100					
918	23	2	1	S	MNVH	430	461	1405		3248			00000101					
926	23	2	1	S	MNVH	435	471	1615		3247			00000100					
327	23	2	2	N	MNVH	190	217	90				C	00000100					
634	23	2	2	N	MNVH	284	302	410		3322			00000100					
682	23	2	2	N	MNVH	305	330	495		3323			00000100					
752	23	2	2	N	MNVH	334	355	665		3321			00000100					
792	23	2	2	N	MNVH	371	399	1075		3320			00000100					
837	23	2	2	N	MNVH	398	424	1325		3319			00000100					
843	23	2	2	N	MNVH	401	424	1295		3315			00000100					
893	23	2	2	N	MNVH	420	450	1420		3316			00000100					
897	23	2	2	N	MNVH	423	451	1540		3318			00000100					
907	23	2	2	N	MNVH	427	459	1505		3317			00000100					
372	23	2	2	S	MNVH	202	219	115			N	N	00000100					
392	23	2	2	S	MNVH	207	225	145			N	N	00000100					
472	23	2	2	S	MNVH	220	238	150			N	N	00000100					
689	23	2	2	S	MNVH	309	334	520		3267			00000110					
787	23	2	2	S	MNVH	369	396	875		3264			00000100					
827	23	2	2	S	MNVH	394	419	1035		3265			00000100					
859	23	2	2	S	MNVH	406	434	1285		3266			00000100					
654	23	2	3	M	MNVH	295	317	435		3327	C		00000100					
865	23	2	3	N	MNVH	410	436	1400	X	2859			00000000					Right Jaw
373	23	2	3	N	MNVH	203	217	120				C	00000100					
378	23	2	3	N	MNVH	204	219	100				C	00000100					
402	23	2	3	N	MNVH	209	227	130				C	00000100					
453	23	2	3	N	MNVH	216	234	135		3332			00000100					
459	23	2	3	N	MNVH	219	232	140				C	00000100					
534	23	2	3	N	MNVH	230	248	165		3333			00000100					
540	23	2	3	N	MNVH	231	251	185		3331			00000100					
582	23	2	3	N	MNVH	249	271	240		3326			00000100					
614	23	2	3	N	MNVH	274	295	325		3330			00000100					
648	23	2	3	N	MNVH	292	317	455		3303			00000100					
673	23	2	3	N	MNVH	302	329	485		3329			00000100					
780	23	2	3	N	MNVH	361	388	850		3328	C		00000100					
846	23	2	3	N	MNVH	402	427	1540	X	3325			00000100					
927	23	2	3	S	MNVH	435	469	1535		3317			00000000					Recap within day on subsequent run - excluded
852	23	2	3	S	MNVH	404	444	1305	X	3373			00000000					
938	23	2	3	S	MNVH	451	480	1560	X	3442			00000000					
357	23	2	3	S	MNVH	200	212	105			N	N	00000100					
447	23	2	3	S	MNVH	215	232	155			N	N	00000100					
448	23	2	3	S	MNVH	215	231	145			N	N	00000100					
449	23	2	3	S	MNVH	215	221	135			N	N	00000100					
461	23	2	3	S	MNVH	219	237	165			N	N	00000100					
529	23	2	3	S	MNVH	220	235	140			N	N	00000100					
585	23	2	3	S	MNVH	229	245	190			N	N	00000100					
587	23	2	3	S	MNVH	254	275	210			N	N	00000100					
626	23	2	3	S	MNVH	256	274	245		3290	N	N	00000100					
						279	297	305					00000100					

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug. 00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Scr ^e	Ageing Structure	Age (yrs)	Comments
646	23	2	3	S	MNWH	291	316	455		3291			00000100				Caudal Clip
690	23	2	3	S	MNWH	309	332	485		3287			00000100				Originally Tagged Last Year
763	23	2	3	S	MNWH	345	370	730		3288			00000100				
824	23	2	3	S	MNWH	392	421	955		2031			00000100				
856	23	2	3	S	MNWH	405	430	1135		3284			00000100				
882	23	2	3	S	MNWH	415	444	1195		3285			00000100				
892	23	2	3	S	MNWH	420	448	1450		3286			00000100				
567	23	2	4	N	MNWH	239	259	215	X	2799	A		00000000				All Fins Clipped Snrm 303=305
103	23	2	4	N	MNWH	178	189	65	X			A C 3.4	00000000				
123	23	2	4	N	MNWH	189	205	90				C 4	00000100				
149	23	2	4	N	MNWH	200	216	120				C 4	00000100				
407	23	2	4	N	MNWH	210	228	135					00000100				
419	23	2	4	N	MNWH	211	227	140				C 4	00000100				
649	23	2	4	N	MNWH	292	316	385		3347			00000100	E	B	M	
667	23	2	4	N	MNWH	300	323	420		3344			00000100				
699	23	2	4	N	MNWH	310	334	525		3345			00000100				
704	23	2	4	N	MNWH	311	338	560		3346			00000100				
712	23	2	4	N	MNWH	314	338	445		3340			00000100				
713	23	2	4	N	MNWH	314	337	570		3343			00000100				
808	23	2	4	N	MNWH	383	412	935		3342			00000100	H	J	H	Left Jaw Infected
895	23	2	4	N	MNWH	421	440	1170		3338			00000100				
903	23	2	4	N	MNWH	426	452	1750		3339			00000100				
908	23	2	4	N	MNWH	427	450	1430	X	3341			00000100				
443	23	2	4	S	MNWH	215	230	160		2892	N	C 4	00000000				
130	23	2	4	S	MNWH	190	210	110			N	C 4	00000100				
158	23	2	4	S	MNWH	200	215	135			N	C 4	00000100				
414	23	2	4	S	MNWH	210	225	135			N	C 4	00000100				
415	23	2	4	S	MNWH	210	225	120			N	C 4	00000100				
450	23	2	4	S	MNWH	215	232	155			N	C 4	00000100				
538	23	2	4	S	MNWH	230	246	195			N	C 4	00000100				
647	23	2	4	S	MNWH	232	250	190		3298	N	C 4	00000100				
720	23	2	4	S	MNWH	315	339	545		3299			00000100				
883	23	2	4	S	MNWH	415	445	1230		2803			00000000				
835	24	1	1	N	MNWH	397	424	1280	X				00000000				
520	24	1	1	N	MNWH	228	246	175				D 1	00000010				
640	24	1	1	N	MNWH	289	305	365		2605		D 1	00000010				
762	24	1	1	N	MNWH	311	333	575		3349			00000010				
810	24	1	1	N	MNWH	384	415	1145		3350			00000010				
828	24	1	1	N	MNWH	395	422	1300					00000010				
884	24	1	1	N	MNWH	415	443	1335			N		00000010				
289	24	1	1	S	MNWH	159	173	45			N	D 1	00000010				
118	24	1	1	S	MNWH	186	201	85			N	D 1	00000010				
521	24	1	1	S	MNWH	228	248	165			N	D 1	00000010				
538	24	1	1	S	MNWH	232	248	185			N	D 1	00000010				
580	24	1	1	S	MNWH	248	265	235			N	D 1	00000010				
699	24	1	1	S	MNWH	265	283	280			N	D 1	00000010				
722	24	1	1	S	MNWH	316	340	525		2404			00000010				
765	24	1	1	S	MNWH	347	379	805		2401			00000010				
873	24	1	1	S	MNWH	413	444	1355		2405			00000010				
710	24	1	2	N	MNWH	330	356	640		2607			00000010				
760	24	1	2	N	MNWH	341	367	785		2608			00000010				
877	24	1	2	N	MNWH	415	441	1545		2610			00000010	H	J	M	
905	24	1	2	N	MNWH	427	457	1420		2609			00000010				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg. -00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Ser ^e	Ageing Structure	Age (yrs)	Comments
737	24	1	2	S	MNVH	320	347	615	X	3431	N	N	00000000				
588	24	1	2	S	MNVH	258	280	255				D	2				
696	24	1	3	N	MNVH	310	335	520	X	3219			00000000				
798	24	1	3	N	MNVH	372	394	855	X	3264		D	3				
293	24	1	3	N	MNVH	165	179	45				D	3				
328	24	1	3	N	MNVH	190	203	95				D	3				
337	24	1	3	N	MNVH	195	207	85				D	3				
368	24	1	3	N	MNVH	222	218	120				D	3				
483	24	1	3	N	MNVH	202	240	160				D	3				
503	24	1	3	N	MNVH	225	243	155				D	3				
546	24	1	3	N	MNVH	232	250	205				D	3				
557	24	1	3	N	MNVH	235	255	180				D	3				
590	24	1	3	N	MNVH	259	278	250				D	3				
607	24	1	3	N	MNVH	270	292	275		2619			00000010				
620	24	1	3	N	MNVH	277	296	280		2653			00000010				
652	24	1	3	N	MNVH	295	315	425		2652			00000010				
663	24	1	3	N	MNVH	300	329	405		2615			00000010				
677	24	1	3	N	MNVH	304	328	405		2620			00000010				
725	24	1	3	N	MNVH	318	342	435		2618			00000010				
730	24	1	3	N	MNVH	320	344	575		2617			00000010				
775	24	1	3	N	MNVH	360	385	945		2616			00000010				
816	24	1	3	N	MNVH	390	416	1250		2614			00000010				
359	24	1	3	S	MNVH	200	215	100			N	D	3				
425	24	1	3	S	MNVH	212	230	135			N	D	3				
486	24	1	3	S	MNVH	222	235	150			N	D	3				
560	24	1	3	S	MNVH	235	252	205			N	D	3				
574	24	1	3	S	MNVH	240	254	195			N	D	3				
728	24	1	3	S	MNVH	302	321	445			N	D	3				
742	24	1	3	S	MNVH	323	343	565			N	D	3				
788	24	1	3	S	MNVH	370	393	975			N	D	3				
801	24	1	3	S	MNVH	377	407	1105			N	D	3				
840	24	1	3	S	MNVH	400	430	1370			N	D	3				
845	24	1	3	S	MNVH	402	431	1225			N	D	3				
848	24	1	3	S	MNVH	403	435	1090			N	D	3				
849	24	1	3	S	MNVH	403	435	1485			N	D	3				
904	24	1	3	S	MNVH	427	460	1445			N	D	3				
805	24	1	4	N	MNVH	379	402	930	X	3180			00000000				
935	24	1	4	N	MNVH	446	472	1610	X	3442			00000000				
369	24	1	4	N	MNVH	202	218	120	X		D	3	3,4				
350	24	1	4	N	MNVH	200	215	95				D	4				
512	24	1	4	N	MNVH	227	245	160		2656			00000010				
678	24	1	4	N	MNVH	305	330	470		2654			00000010				
890	24	1	4	N	MNVH	420	451	1300		2655			00000010				
393	24	1	4	S	MNVH	207	222	150	X		D	3	3,4				
312	24	1	4	S	MNVH	182	195	105			N	D	4				
539	24	1	4	S	MNVH	230	247	205			N	D	4				
899	24	2	1	N	MNVH	424	449	1325	X	3248			00000000				
445	24	2	1	N	MNVH	215	231	115				D	1				
528	24	2	1	N	MNVH	229	246	155				D	1				
579	24	2	1	N	MNVH	245	266	155				D	1				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug. 00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c	Injuries Loc ^d	Injuries Sex ^e	Aging Structure	Age (yrs)	Comments
605	24	2	1	N	MNWH	268	283	210				D	1						
622	24	2	1	N	MNWH	278	291	325		2662			00000001						
705	24	2	1	N	MNWH	312	337	530		2666			00000001	E	B	L			
715	24	2	1	N	MNWH	315	340	545		2665			00000001						
750	24	2	1	N	MNWH	330	353	575		2657			00000001						
766	24	2	1	N	MNWH	348	373	750		2661			00000001						
768	24	2	1	N	MNWH	351	375	760		2658			00000001						
769	24	2	1	N	MNWH	351	378	820		2664			00000001						
794	24	2	1	N	MNWH	371	392					D	1						
922	24	2	1	N	MNWH	433	461	1325		2659			00000001						
929	24	2	1	N	MNWH	440	470	1610		2660	N		00000001						
315	24	2	1	S	MNWH	184	198	95			N		00000001						
334	24	2	1	S	MNWH	194	211				N		00000001						
387	24	2	1	S	MNWH	205	222	125			N		00000001						
561	24	2	1	S	MNWH	235	242	195			N		00000001						
566	24	2	1	S	MNWH	238	256	185			N		00000001						
628	24	2	1	S	MNWH	280	302	355		2507			00000001						
714	24	2	1	S	MNWH	315	340	615		2550			00000001						
784	24	2	1	S	MNWH	364	399	960		2546			00000001						
813	24	2	1	S	MNWH	388	420	1405		2544			00000001						
833	24	2	1	S	MNWH	397	426	1225		2545			00000001						
874	24	2	1	S	MNWH	413	435	1260		2549			00000001						
886	24	2	1	S	MNWH	417	447	1540		2542			00000001						
887	24	2	1	S	MNWH	417	447	1475		2548			00000001						
928	24	2	1	S	MNWH	440	471	1615		2543			00000001						
832	24	2	2	N	MNWH	395	415	1065	X	3135			00000000						
353	24	2	2	N	MNWH	200	215	95				D	2						
108	24	2	2	N	MNWH	210	225	160				D	2						
532	24	2	2	N	MNWH	231	248	160				D	2						
609	24	2	2	N	MNWH	300	321	460					00000001						
679	24	2	2	N	MNWH	305	326	500		2672			00000001						
804	24	2	2	N	MNWH	379	398	880	X	2671			00000001						
826	24	2	2	S	MNWH	392	422	1380		2544			00000000						
395	24	2	2	S	MNWH	168	188	80					00000001						
960	24	2	2	S	MNWH	200	216	125				D	2						
174	24	2	2	S	MNWH	203	222	125			N		00000001						
179	24	2	2	S	MNWH	221	235	160			N		00000001	H	J	L			
192	24	2	2	S	MNWH	223	240	175			N		00000001						
816	24	2	2	S	MNWH	225	245	185			N		00000001						
684	24	2	2	S	MNWH	306	332	525		2515			00000001						
739	24	2	2	S	MNWH	320	344	560		2516			00000001						
825	24	2	2	S	MNWH	392	422	1245		2508			00000001						
199	24	2	3	N	MNWH	225	243	140	X	2925			00000000						
639	24	2	3	N	MNWH	280	299	315	X	3158			00000000						
758	24	2	3	N	MNWH	340	362	700	X	3193			00000000						
146	24	2	3	N	MNWH	215	232	130	X		D		00000000						
186	24	2	3	N	MNWH	206	220	100			D		00000001						
417	24	2	3	N	MNWH	214	231	120			D		00000001						
184	24	2	3	N	MNWH	222	240	140			D		00000001						
504	24	2	3	N	MNWH	225	241	140			D		00000001	E	B	L			
505	24	2	3	N	MNWH	225	245	155			D		00000001						
549	24	2	3	N	MNWH	233	251	165			D		00000001						
664	24	2	3	N	MNWH	299	319	525		2628			00000001						

Recap within day - same run - evaluated

Scale

6

Sum 446=486

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^a Sev ^c	Ageing Structure	Age (yrs)	Comments
670	24	2	3	N	MNVH	300	321	515		2634			00000000				Mortality, tag # dead
693	24	2	3	N	MNVH	310	335	560		2637			00000001				
731	24	2	3	N	MNVH	320	340	545		2627			00000001	E	B	L	
767	24	2	3	N	MNVH	350	372	735		2635			00000001				
894	24	2	3	N	MNVH	420	448	1555					00000000				Mortality, tag # dead
493	24	2	3	N	MNVH	223	242	170	X		A	3	AD				Snum 491=493
474	24	2	3	S	MNVH	220	236	175			N	N	D	3			
480	24	2	3	S	MNVH	221	237	180			N	N	D	3			
522	24	2	3	S	MNVH	228	243	195			N	N	D	3			
563	24	2	3	S	MNVH	236	255	210			N	N	D	3			
575	24	2	3	S	MNVH	240	256	230			N	N	D	3			
581	24	2	3	S	MNVH	248	264	235			N	N	D	3			
606	24	2	3	S	MNVH	268	289	285			N	N	D	3			
618	24	2	3	S	MNVH	276	295	350		2524			00000001				
638	24	2	3	S	MNVH	288	305	385		2435			00000001				
687	24	2	3	S	MNVH	308	332	480		2521			00000001				
709	24	2	3	S	MNVH	314	338	585		2520			00000001				
726	24	2	3	S	MNVH	319	340	615		2522			00000001				
850	24	2	3	S	MNVH	403	428	1345		2519			00000001	P	B	L	
876	24	2	3	S	MNVH	415	445	1350		2523			00000001				
914	24	2	3	S	MNVH	430	461	1460		2517			00000001				
924	24	2	3	S	MNVH	435	467	1705		2518			00000001				
774	24	2	4	N	MNVH	359	385	805	X	3214			00000000				
636	24	2	4	N	MNVH	285	307	415	X	3417			00000000				
317	24	2	4	N	MNVH	185	203	70					00000001				
384	24	2	4	N	MNVH	205	222	115					00000001				
535	24	2	4	N	MNVH	230	251	185					00000001				
738	24	2	4	N	MNVH	320	346	660					00000001				
807	24	2	4	N	MNVH	382	406	925					00000001	E	E	M	Both Eyes Bulging
863	24	2	4	N	MNVH	408	436	1575					00000001				
889	24	2	4	N	MNVH	419	445	1425					00000001				
361	24	2	4	S	MNVH	200	216	100					00000001				
433	24	2	4	S	MNVH	213	232	160					00000001				
475	24	2	4	S	MNVH	220	236	160					00000001				
523	24	2	4	S	MNVH	228	245	185					00000001				
524	24	2	4	S	MNVH	228	245	195					00000001				
584	24	2	4	S	MNVH	251	270	260					00000001				
611	24	2	4	S	MNVH	272	283	330					00000001				
641	24	2	4	S	MNVH	289	312	395					00000001				
748	24	2	4	S	MNVH	328	351	650					00000001				
759	24	2	4	S	MNVH	340	367	670					00000001				
773	24	2	4	S	MNVH	358	382	820					00000001				
781	24	2	4	S	MNVH	361	390	925					00000001				
803	24	2	4	S	MNVH	378	401	875					00000001				
823	24	2	4	S	MNVH	390	422	1220					00000001				
901	24	2	4	S	MNVH	425	457	1495					00000000				
933	24	2	4	S	MNVH	445	480	1635					00000001				
1047	21	1	1	N	RNTR	220	231	135		2436			10000000				Mortality - Female
953	21	1	1	S	RNTR	178	191	80		2437			10000000	H	E	H	
1081	21	1	1	S	RNTR	230	244	165		2701	N	A	1				
1333	21	1	1	S	RNTR	484	506	1070		2902			10000000	H	J	H	Right Mandible Missing, Caudal Clip - Lower
966	21	1	2	N	RNTR	185	195	95		2901	N	A	2				

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag ^c	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c	Injuries Loc ^d	Ageing Structure	Age (yrs)	Comments
1174	21	1	2	N	RNTR	384	402	715		2704	N	N	10000000					
1025	21	1	2	S	RNTR	212	221	130		2912	A	A	10000000					
1086	21	1	2	S	RNTR	231	241	145		2911			10000100					Left Gill Cover Damaged
1156	21	1	2	S	RNTR	335	350	500		2910			10000000	D	G	L		
1253	21	1	2	S	RNTR	440	456	1015		2909			10000000					
1303	21	1	2	S	RNTR	461	477	1055		2708	N	N	10000000	H	J	L	1	
951	21	1	3	N	RNTR	177	186	60			N	A	10000000			Scale	5	
1233	21	1	3	N	RNTR	432	455	1040			N	A	10000000			Scale		
942	21	1	3	S	RNTR	158	167	55			N	A	10000000					
944	21	1	3	S	RNTR	164	170	65			N	A	10000000					
946	21	1	3	S	RNTR	170	179	70			N	A	10000000					Not marked, excluded
1010	21	1	3	S	RNTR	207	222	120			N	A	00000000					
1016	21	1	3	S	RNTR	210	220	130		2930			10000000					
1120	21	1	3	S	RNTR	245	254	195		2929			10000000					
1208	21	1	3	S	RNTR	418	430	820		2928			10000000					
1336	21	1	3	S	RNTR	486	501	1255		2927			10000000					
1375	21	1	3	S	RNTR	530	551	1665		2926			10001000					
1380	21	1	3	S	RNTR	570	597	1715		2918			10000000	H	J	L		Lower Jaw, Left Mandible Damage
1079	21	1	4	N	RNTR	230	240	175		2719			10000000					
1386	21	1	4	N	RNTR	400	422	775		2715			10000000	H	J	L	2	
1277	21	1	4	N	RNTR	451	475	935		2714			10000000	H	J	L	3	
1279	21	1	4	N	RNTR	452	480	1200		2713			10000000					
1288	21	1	4	N	RNTR	455	477	1130		2712			10000000	H	E	H	3	
1302	21	1	4	N	RNTR	461	485	1310		2709			10000000	H	J	L	5	Escaped - included in estimate
1344	21	1	4	N	RNTR	495	521	1310		2718			10000000	H	J	L	4	Small burn mark Shum 997-990
990	21	1	4	S	RNTR	198	212	80		2950	N	A	10000010					
992	21	1	4	S	RNTR	199	205	115			N	A	10000000					
1032	21	1	4	S	RNTR	213	221	145			N	A	10000000					
1056	21	1	4	S	RNTR	222	232	165		2949			10000000					
1065	21	1	4	S	RNTR	225	236	150		2940			10000000					
1345	21	1	4	S	RNTR	436	461	970		2934			10000000	D	F	M		Right Pec Damage Lower Jaw
1297	21	1	4	S	RNTR	458	472	1180		2937			10000000	H	J	L		
1309	21	1	4	S	RNTR	465	486	1195		2939			10000000					
1310	21	1	4	S	RNTR	481	488	1540		2936			10000001	H	J	H		Left Mandible Damage
1338	21	1	4	S	RNTR	488	511	1485		2935			10000000					
1356	21	1	4	S	RNTR	503	529	1505		2938			10010000					
1361	21	1	4	S	RNTR	508	527	1270		2933			10000000					
967	21	2	1	N	RNTR	187							00000000					Escaped - excluded from estimate
1048	21	2	1	N	RNTR	220	230	135		2742			01000000			Scale		
1077	21	2	1	N	RNTR	229	239	155		2738			01000000			Scale		
1103	21	2	1	N	RNTR	239	245	170		2737			01000000			Scale	4	
1346	21	2	1	N	RNTR	496	515	1450		2721			01010000	H	J	L		
1357	21	2	1	N	RNTR	505	520	1120		2727			01000000	H	J	H		
1367	21	2	1	N	RNTR	515	525	1380		2725			01000000					
1368	21	2	1	N	RNTR	518	530	1570		2724			01000000	H	J	M	4	
982	21	2	1	S	RNTR	195	205	105			N	A	01000000			Scale	2	
1005	21	2	1	S	RNTR	205	213	115			N	A	01000000			Scale		
1009	21	2	1	S	RNTR	206	216	120			N	A	01000000			Scale		
1098	21	2	1	S	RNTR	236	249	175		2968			01000000			Scale		
1104	21	2	1	S	RNTR	239	250	150		2970			01000000			Scale		
1115	21	2	1	S	RNTR	243	258	200		2965			01000000			Scale		
1358	21	2	1	S	RNTR	442	462	895					00000000					Escaped - parts missing from estimate
1366	21	2	1	S	RNTR	512	537	1550		2971			01000000	H	J	L		Missing Damage

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c	Injuries Loc ^c	Age (yrs)	Comments
938	21	2	2	N	RNTR	181	194	70				A	2	H	J	L	
970	21	2	2	N	RNTR	190	198	95				A	2				
993	21	2	2	N	RNTR	200	209	110				A	2				
1183	21	2	2	N	RNTR	397	412	755		2753				H	E	H	
1349	21	2	2	N	RNTR	498	513	1405		2751				H	J	L	
943	21	2	2	S	RNTR	162	171	60			N	A	2				
994	21	2	2	S	RNTR	200	211	125			N	A	2				
1033	21	2	2	S	RNTR	213	221	125			N	A	2				
1050	21	2	2	S	RNTR	220	232	85		2977							
1095	21	2	2	S	RNTR	235	245	170		2990						2	
1136	21	2	2	S	RNTR	260	270	225		2992							
1178	21	2	2	S	RNTR	391	410	635		2981						3	
1212	21	2	2	S	RNTR	420	436	960		2979						3	
1236	21	2	2	S	RNTR	433	454	900		2975						4	Right Mandible Gone
987	21	2	2	S	RNTR	197	202	85				A	3	H	J	L	
1072	21	2	3	N	RNTR	228	244	160		2770							
1107	21	2	3	N	RNTR	240	252	215		2764							
1184	21	2	3	N	RNTR	397	415	630		2760				H	E	H	Mandible damage
1185	21	2	3	N	RNTR	397	411	950		2765							Missing mandible both sides.
1289	21	2	3	N	RNTR	455	475	960		2774				E	B	L	
1348	21	2	3	N	RNTR	497	510	1085		2766							Left Mandible Damaged
1239	21	2	3	S	RNTR	190	200	95	X	2708				H	J	L	
974	21	2	3	S	RNTR	192	200	90			N	A	3				
1006	21	2	3	S	RNTR	205	215	150			N	A	3				
1026	21	2	3	S	RNTR	212	222	135			N	A	3				
1052	21	2	3	S	RNTR	220	230	135			N	A	3				
1082	21	2	3	S	RNTR	230	241	175		3042							
1131	21	2	3	S	RNTR	254	264	225		3040							
1176	21	2	3	S	RNTR	390	407	785		3034				H	J	L	Missing Left Mandible.
1237	21	2	3	S	RNTR	434	449	855		3029							
1291	21	2	3	S	RNTR	455	475	940		3030							
1300	21	2	3	S	RNTR	459	475	1200		3032							
1327	21	2	3	S	RNTR	478	483	995		3028							
1382	21	2	3	S	RNTR	227	236	150		2777							Caudal Clip
1070	21	2	4	N	RNTR	377	398	665		2775							Escaped - excluded from estimate
1167	21	2	4	N	RNTR	433	448	880		2779				H	J	M	
1235	21	2	4	N	RNTR	508	520	1405		2781				H	J	M	
1360	21	2	4	N	RNTR	530	550	1675		2776							
1374	21	2	4	N	RNTR	200	210	110			N	A	4				Shum 999=995
995	21	2	4	S	RNTR	212	220	130		3081							
1024	21	2	4	S	RNTR	230	242	155		3080				H	G	L	Short Gill Plate - Right Side
1134	21	2	4	S	RNTR	256	266	225		3070							
1137	21	2	4	S	RNTR	353	368	545		3058							
1157	21	2	4	S	RNTR	425	442	910		3060							
1221	21	2	4	S	RNTR	430	448	960		3052							
1230	21	2	4	S	RNTR	438	460	1030		3057							
1250	21	2	4	S	RNTR	440	452	855		3051							
1254	21	2	4	S	RNTR	440	450	935		3059							
1255	21	2	4	S	RNTR	451	460	1125		3046				H	E	H	HYBRID - Blind In Right Eye
1278	21	2	4	S	RNTR	451	460	1125		3046							
1304	21	2	4	S	RNTR	461	480	1100		3056							

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug. 00)	Run	Section	Bank *	Species *	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip # Capture Date	Clip # Release Date	Encounter	Injuries Cause ¹ Loc ² Sex ³	Ageing Structure	Age (yr)	Comments
1333	21	2	4	S	RNTR	472	496	1435		3053			01000000	H J L	Scale		Lower Jaw Damage
1631	22	1	1	N	RNTR	213	226	140		2796			01000000	H J M	Scale	2	
1664	22	1	1	N	RNTR	225	239	140		2900			01000000	H J M	Scale	2	
1170	22	1	1	N	RNTR	380	398	770		2784			01000000	H J M	Scale	4	
1262	22	1	1	N	RNTR	444	456	815		2785			01010000	H J M	Scale	4	
1285	22	1	1	N	RNTR	454	470	1070		2798			01000000	H J M	Scale	4	
1299	22	1	1	N	RNTR	459	475	985		2792			01001000	H J M	Scale	5	
1175	22	1	1	S	RNTR	388	412	630	X	2981			00000000				
1105	22	1	1	S	RNTR	239	246	190		3094			01000000		Scale		
1117	22	1	1	S	RNTR	244	253	205		3093			01000000		Scale	2	
1152	22	1	1	S	RNTR	324	337	345		3095			01000000		Scale	2	
1191	22	1	1	S	RNTR	407	429	820		3084			01000000	P B L	Scale	3	
1219	22	1	1	S	RNTR	423	441	845		3085			01000000		Scale	5	
1363	22	1	1	S	RNTR	508	525	1280		3083			01010100		Scale		
1049	22	1	2	N	RNTR	183	190	80				B 2	01000000	H E H	Scale	1	
1071	22	1	2	N	RNTR	220	227	135		2817			01000000		Scale		
1142	22	1	2	N	RNTR	227	235	160		2814			01000000		Scale		
1169	22	1	2	N	RNTR	273	285	305		2816			01000000		Scale		
1265	22	1	2	N	RNTR	379	393	705		2809			01000000	H E M	Scale	3	
1283	22	1	2	N	RNTR	445	461	890		2806			01010000	H E H	Scale	5	
964	22	1	2	N	RNTR	453	472	1135		2811			01000000		Scale	4	
1331	22	1	2	S	RNTR	184	195	70			N	B 2	01000000		Scale		
952	22	1	2	S	RNTR	483	505	1040		3098			01000000	H J L	Scale	5	
963	22	1	3	N	RNTR	178	184	85				B 3	01000000		Scale		
1013	22	1	3	N	RNTR	184	189	80				B 3	01000000		Scale		
1171	22	1	3	N	RNTR	209	218	120		2824			01000000		Scale		
953	22	1	3	S	RNTR	380	393	515		2821			01000000	H E H	Scale		Blind in left eye
1015	22	1	3	S	RNTR	190	202	90			N	B 3	01000000		Scale		
1034	22	1	3	S	RNTR	210	217	125			N	B 3	01000000		Scale		
1116	22	1	3	S	RNTR	213	222	145			N	B 3	01000000		Scale		
1154	22	1	3	S	RNTR	243	256	185		3352			01000000		Scale		
1161	22	1	3	S	RNTR	329	341	465		3367			01000000	H J L	Scale		
1180	22	1	3	S	RNTR	364	380	600		3369			01000000		Scale		
1181	22	1	3	S	RNTR	392	412	745		3363			01000000		Scale		
1182	22	1	3	S	RNTR	394	412	710		3368			01000000		Scale		
1231	22	1	3	S	RNTR	395	412	795		3370			01000000		Scale		
1247	22	1	3	S	RNTR	431	449	965		3362			01000000		Scale		
1298	22	1	3	S	RNTR	436	452	995		3365			01001000		Scale		
1371	22	1	3	S	RNTR	458	481	1110		3366			01000000	H J L	Scale	6	
971	22	1	4	N	RNTR	190	200	105		3361		B 4	01000000		Scale		
1165	22	1	4	N	RNTR	375	389	660		2832			01000000	E E L	Scale		
1187	22	1	4	N	RNTR	405	422	495		2839			01010000	H E L	Scale		
1355	22	1	4	N	RNTR	502	518	1195		2827			01000000	H E H	Scale	4	Blind right eye, large maxilla
1358	22	1	4	N	RNTR	505	520	1385		2837			01000000	H J L	Scale	5	
983	22	1	4	S	RNTR	195	205	90			N	B 4	01000000	H J L	Scale	6	
996	22	1	4	S	RNTR	200	210	120			N	B 4	01000000		Scale		
1100	22	1	4	S	RNTR	237	250	215		3391			00100900		Scale		
1201	22	1	4	S	RNTR	414	439	880		3382			01000000		Scale		
1202	22	1	4	S	RNTR	414	433	855		3384			01000000		Scale		
1203	22	1	4	S	RNTR	414	430	760		3385			01010100	H J M	Scale		
1215	22	1	4	S	RNTR	420	435	875		3380			01000000		Scale		
1301	22	1	4	S	RNTR	460	481	955		3383			01000000	H J L	Scale		

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date Sect.	Clip @ Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Sev ^e	Age (yrs)	Comments
1324	22	1	4	S	RNTR	477	498	1360		3379			001000000			
1353	22	1	4	S	RNTR	500	515	1575		3381			001000000			
1340	22	2	1	N	RNTR	493	499	1370	X	2721			000000000	H	J	L
1168	22	2	1	N	RNTR	379	395	775	X	2784			000000000	H	J	L
1046	22	2	1	N	RNTR	219	226	135		2854			000100000	H	B	L
1073	22	2	1	N	RNTR	228	238	155		2851			000100000	E	B	L
1097	22	2	1	N	RNTR	236	244	185		2850			000100000			
1160	22	2	1	N	RNTR	359	374	535		2844			000100000	H	E	M
1207	22	2	1	N	RNTR	416	429	795		2842			000100000	H	E	H
1263	22	2	1	N	RNTR	444	462	1245		2841			000100000			
1308	22	2	1	N	RNTR	465	480	1110		2855			000100000			
1328	22	2	1	N	RNTR	480	490	1325		2856			000100000			
1017	22	2	1	S	RNTR	210	220	145		3411			000100000			
1039	22	2	1	S	RNTR	215	223	140		3412			000100000			
1122	22	2	1	S	RNTR	245	257	185		3408			000100000			
1158	22	2	1	S	RNTR	356	367	550		3400			000100000			
1329	22	2	1	S	RNTR	480	510	1205		3403			000100000			
1011	22	2	2	N	RNTR	208	215	120		2878			000100000			
1094	22	2	2	N	RNTR	235	244	190		2879			000100000			
1252	22	2	2	N	RNTR	440	460	1050		2872			000100000	B	L	
1274	22	2	2	N	RNTR	450	462	1025		2871			000101000	E	H	
1296	22	2	2	N	RNTR	458	470	1060		2863			000100000	H	J	M
1377	22	2	2	N	RNTR	539	555	1910		2869			000100000	H	J	M
969	22	2	2	S	RNTR	189	197	85			N	B	000100000			
1036	22	2	2	S	RNTR	214	225	135			N	B	000100000			
1040	22	2	2	S	RNTR	215	226	190		3434			000100000			
1053	22	2	2	S	RNTR	220	230	155			N	B	000100000			
1089	22	2	2	S	RNTR	231	242	155		3435			000100000			
1096	22	2	2	S	RNTR	235	245	200		3437			000100000			
1129	22	2	2	S	RNTR	252	262	235		3436			000100000			
1216	22	2	2	S	RNTR	420	436	740		3422			000100000	H	E	
981	22	2	3	N	RNTR	195	205	100			B	3	000100000			
988	22	2	3	N	RNTR	197	204	100			B	3	000100000			
1001	22	2	3	N	RNTR	204	215	125		3102			000100000			
1003	22	2	3	N	RNTR	205	214	115		2884			000100000			
1004	22	2	3	N	RNTR	205	214	120		2893			000100000			
1035	22	2	3	N	RNTR	214	225	135		2899			000100000			
1080	22	2	3	N	RNTR	230	241	190		2887			000100000			
1149	22	2	3	N	RNTR	301	316	385		2890			000100000			
1226	22	2	3	N	RNTR	429	445	925		3105			000100000	H	J	
1376	22	2	3	N	RNTR	535	552	1620		2896			000100000	H	J	
954	22	2	3	S	RNTR	178	208	65			N	B	000100000	H	J	
986	22	2	3	S	RNTR	196	203	110			N	B	000100000			
998	22	2	3	S	RNTR	201	210	105			N	B	000100000			
1007	22	2	3	S	RNTR	205	215	150			N	B	000100000			
1125	22	2	3	S	RNTR	251	262	200		3460			000100000			
1319	22	2	3	S	RNTR	470	492	1265		3439			000100000			
945	22	2	4	N	RNTR	166	180	40			B	4	000100000			
1188	22	2	4	N	RNTR	405	423	925		3111			000100000	H	J	
1240	22	2	4	N	RNTR	435	450	955		3112			000100000			
1310	22	2	4	N	RNTR	465	483	1295		3113			000100000	H	J	
1370	22	2	4	N	RNTR	520	535	2065		3114			000100000	H	J	
1362	22	2	4	S	RNTR	508	530	1500	X	2938			000000000			

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank	Species	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @ Capture Date	Clip @ Release Date	Encounter	Injuries Cause ^c	Injuries Loc ^d	Ageing Structure	Age (yrs)	Comments
1241	23	1	4	N	RNTR	435	458	940		3191			00001000	H	E			Left eye
1246	23	1	4	N	RNTR	436	463	1090		3182			00001000					Both maxillae
1332	23	1	4	N	RNTR	483	514	1415		3184			00001000	H	J			
1339	23	1	4	N	RNTR	489	507	1270		3179			00001000	H	J			
1341	23	1	4	N	RNTR	493	517	1395		3185			00001000	H	J			Left maxillae
1342	23	1	4	N	RNTR	494	525	1280		3187			00001000	H	J			Left maxillae
1172	23	1	4	S	RNTR	380	402	725	X	3467			00000000					
1059	23	1	4	S	RNTR	223	231	155		3237			00001000					
1061	23	1	4	S	RNTR	223	234	105			N	C	4					
1066	23	1	4	S	RNTR	225	237	160		3243			00001000					
1075	23	1	4	S	RNTR	228	236	145		3236			00001000					
1085	23	1	4	S	RNTR	230	240	130			N	C	4					
1121	23	1	4	S	RNTR	245	257	200		3242			00001000					
1140	23	1	4	S	RNTR	268	280	195		3244			00001000					
1222	23	1	4	S	RNTR	428	445	960		3238			00001000					
1110	23	2	1	N	RNTR	240	253	205		3311			00000100					
1128	23	2	1	N	RNTR	252	265	200		3313			00001000					
1166	23	2	1	N	RNTR	376	395	525		3310			00001000	H	H			Opercular, blind in right eye
1281	23	2	1	N	RNTR	452	476	1200		3308			00001000					
1317	23	2	1	N	RNTR	470	495	1195		3307			00000100	H	J			Torn bad
1318	23	2	1	N	RNTR	470	485	1270		3314			00001000	E	B			
1267	23	2	1	S	RNTR	445	470	1060	X	2792			00000000	H	E			
1037	23	2	1	S	RNTR	214	222	145			N	C	1					
1041	23	2	1	S	RNTR	215	225	130			N	C	1					
1127	23	2	1	S	RNTR	252	264	225		3258			00001000					
1153	23	2	1	S	RNTR	329	348	3257		3257			00001000	H	E			Hybrid (Cul-bow)
1159	23	2	1	S	RNTR	357	365	515		3254			00001000					
1204	23	2	1	S	RNTR	415	444	880		3260			00001000					
1286	23	2	1	S	RNTR	454	468	1170		3259			00001000					
1294	23	2	1	S	RNTR	457	477	1170		3256			00001000					
1354	23	2	1	S	RNTR	501	521	1535		3255			00001000	H	J			Hybrid (Cul-bow)
1378	23	2	1	S	RNTR	541	560	1105		3261			00001000					Skimpy Fish
1243	23	2	2	N	RNTR	435	453	885		3324			00000100	H	J			
1014	23	2	2	S	RNTR	209	229	140			N	C	2					
1015	23	2	2	S	RNTR	209	216	135			N	C	2					
1019	23	2	2	S	RNTR	210	219	125			N	C	2					
1042	23	2	2	S	RNTR	215	224	185			N	C	2					
1256	23	2	2	S	RNTR	442	462	1040		3274			00001000					
1345	23	2	2	S	RNTR	495	520	1495		3275			00001000					
1214	23	2	3	N	RNTR	420	446	950		3334			00000100					
1244	23	2	3	N	RNTR	435	457	870		3335			00001000	H	J			Right Maxillae
1365	23	2	3	N	RNTR	508	532	1500		3337			00001000					
1290	23	2	3	S	RNTR	455	472	1020	X	2871			00000000	H	J			
1074	23	2	3	S	RNTR	228	238	180	X	2912			00000000					
1087	23	2	3	S	RNTR	231	242	155	X	3042			00000000					
1275	23	2	3	S	RNTR	450	471	1010	X	3212			00000000	H	J			Eye Gone Rightside, HYBRID; Recap within day
1238	23	2	3	S	RNTR	434	450	950	X	3365			00000000					
975	23	2	3	S	RNTR	192	202	100			N	C	3					
1038	23	2	3	S	RNTR	214	224	110			N	C	3					
1044	23	2	3	S	RNTR	216	226	150			N	C	3					
1091	23	2	3	S	RNTR	232	243	190			N	C	3					
1177	23	2	3	S	RNTR	390	405	780		3278			00000100					

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank	Species ^a	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip # Capture Date Sect.	Clip # Release Date Sect.	Encounter	Injuries Cause ^c Loc ^d Sev ^e	Aging Structure	Age (yrs)	Comments
1189	23	2	3	S	RNTR	406	422	900		3281			00000100				
1242	23	2	3	S	RNTR	435	448	900		3289			00000100				
1195	23	2	4	N	RNTR	409	427	755	X	3385			00000000				
1101	23	2	4	N	RNTR	238	253	180		3348			00000100				
999	23	2	4	S	RNTR	202	210	140	X		A 4	A,C 4	00000000				
965	23	2	4	S	RNTR	184	195	110			N N	C 4	00000100				
976	23	2	4	S	RNTR	192	202	120			N N	C 4	00000100				
1055	23	2	4	S	RNTR	221	231	200			N N	C 4	00000100				
1076	23	2	4	S	RNTR	228	235	215			N N	C 4	00000100				
1090	23	2	4	S	RNTR	231	242	205			N N	C 4	00000100				
1111	23	2	4	S	RNTR	240	249	215			N N	C 4	00000100				
1124	23	2	4	S	RNTR	249	260	220			N N	C 4	00000100				
1126	23	2	4	S	RNTR	251	262	250			N N	C 4	00000100				
1133	23	2	4	S	RNTR	255	269	260			N N	C 4	00000100				
1144	23	2	4	S	RNTR	275	285	330		3296			00000100				
1210	23	2	4	S	RNTR	419	435	940		3293			00000100				
1311	23	2	4	S	RNTR	465	482	1265		3294			00000100				
940	24	1	1	N	RNTR	175	185	75					00000010				
1220	24	1	1	N	RNTR	424	446	910		2602			00000010				
1316	24	1	1	N	RNTR	470	490	1090		2601			00000010				Minor Electro Burn
989	24	1	1	S	RNTR	197	210	115			N N	D 1	00000010				
1083	24	1	1	S	RNTR	215	225	135			N N	D 1	00000010				
1133	24	1	1	S	RNTR	485	505	1100		2402			00000010				
1152	24	1	1	S	RNTR	500	515	1260		3300			00000010				
1022	24	1	2	N	RNTR	211	225	85		2612			00000010				
1151	24	1	2	N	RNTR	500	524	1595		2611			00000010				
1026	24	1	2	S	RNTR	210	223	175	X		C 2	C,D 2	00000000				Right Maxillae Snrm 1020=1027
1010	24	1	2	S	RNTR	213	245	165		2409			00000010				
1119	24	1	2	S	RNTR	245	264	215		2408			00000010				
1222	24	1	2	S	RNTR	450	475	1015		2407			00000010				Eye Deformed
1162	24	1	3	N	RNTR	369	388	560		2622			00000010				Both Maxillae Gone
1251	24	1	3	N	RNTR	440	460	940		2625			00000010				
1150	24	1	3	N	RNTR	499	514	1380		2624			00000010				Left Maxillae Gone
1169	24	1	3	N	RNTR	519	544	1490		2623			00000010				
963	24	1	3	S	RNTR	183	192	95			N N	D 3	00000010				
984	24	1	3	S	RNTR	195	203	100			N N	D 3	00000010				
1023	24	1	3	S	RNTR	211	221	140			N N	D 3	00000010				
1152	24	1	3	S	RNTR	456	485	1260		2419			00000010				
1179	24	1	3	S	RNTR	555	578	1755		2421			00000000				
1163	24	1	4	S	RNTR	508	525	1300	X				00000000				
1257	24	1	4	S	RNTR	442	460	930	X	3461			00000000				
997	24	1	4	S	RNTR	200	211	100	X		A 4	A,D 4	00000000				
947	24	1	4	S	RNTR	178	190	60			N N	D 4	00000010				
980	24	1	4	S	RNTR	193	203	90			N N	D 4	00000010				
985	24	1	4	S	RNTR	195	207	100			N N	D 4	00000010				
1093	24	1	4	S	RNTR	204	222	130			N N	D 4	00000010				
1113	24	1	4	S	RNTR	243	252	180		2536			00000010				
1163	24	1	4	S	RNTR	371	399	595					00000000				
1164	24	1	4	S	RNTR	375	399	725		2530			00000010				
1186	24	1	4	S	RNTR	407	426	860		2425			00000010				
1211	24	1	4	S	RNTR	420	432	985		2528			00000010				
1228	24	1	4	S	RNTR	430	447	975		2526			00000010				
1318	24	1	4	S	RNTR	437	452	980		2527			00000010				

Escaped, excluded from estimate

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Avg. 00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip @		Encounter	Injuries		Ageing Structure	Age (yrs)	Comments
											Capture Date	Release Date		Cause ^c	Loc ^d			
1307	24	1	4	S	RNTR	464	482			2526			00000010					
1326	24	1	4	S	RNTR	478	492			2423			00000010					
1335	24	1	4	S	RNTR	486	503			2424			00000010					
1322	24	2	1	N	RNTR	471	498		X	2936			00000000	H	J	H		Right Jaw Badly Torn
1206	24	2	1	N	RNTR	416	432			2668			00000001	H	J	H		
1347	24	2	1	N	RNTR	497	524			2669			00000001	H	J	H		Left Jaw
1373	24	2	1	N	RNTR	530	559			2670			00000001	H	E	H		Left Maxillae Gone
1260	24	2	1	S	RNTR	443	463		X	3274			00000000					
950	24	2	1	S	RNTR	176	184				N	D	1	00000001				
959	24	2	1	S	RNTR	181	190				N	D	1	00000001				
1000	24	2	1	S	RNTR	202	212				N	D	1	00000001				
1028	24	2	1	S	RNTR	212	222				N	D	1	00000001				
1062	24	2	1	S	RNTR	223	233				N	D	1	00000001				
1093	24	2	1	S	RNTR	235	246			2506			00000001					
1130	24	2	1	S	RNTR	253	263			2504			00000001					
1148	24	2	1	S	RNTR	293	310			2537			00000001					
1151	24	2	1	S	RNTR	320	338			2505			00000001	H	J	L		Blind Right Eye
1269	24	2	1	S	RNTR	447	463			2540			00000001					
1273	24	2	1	S	RNTR	450	476			2541			00000001	H	J	L		Right Mandible
1282	24	2	1	S	RNTR	453	463			2539			00000001					
1293	24	2	1	S	RNTR	456	470			2538			00000001					
1045	24	2	2	N	RNTR	219	231			2663			00000001					
1197	24	2	2	N	RNTR	411	430			2675			00000001	H	J	L		
1259	24	2	2	N	RNTR	443	468			2674			00000001					
1295	24	2	2	N	RNTR	458	482			2673			00000001	H	J	L		Upper Jaw
977	24	2	2	S	RNTR	192	200				N	D	2	00000001				
1102	24	2	2	S	RNTR	238	248				N	D	2	00000001				
1141	24	2	2	S	RNTR	270	282			2512			00000001					
1225	24	2	2	S	RNTR	429	450			2511			00000001					
1106	24	2	3	N	RNTR	239	251		X	3163			00000000					
979	24	2	3	N	RNTR	193	203					D	3	00000001				
1092	24	2	3	N	RNTR	233	245			2632			00000001					Left Eye, Left Face Torn Off
1139	24	2	3	N	RNTR	262	276			2626			00000001					
1234	24	2	3	N	RNTR	433	455			2630			00000001	H	J	M		Left Maxillae
1264	24	2	3	N	RNTR	445	465			2629			00000001					
1381	24	2	3	N	RNTR	590	619			2146			00000001	H	J	H		Lost both mandible, originally tagged last year
1284	24	2	3	S	RNTR	453	472		X	3030			00000000					
978	24	2	3	S	RNTR	192	203				N	D	3	00000001				
1021	24	2	3	S	RNTR	210	220				N	D	3	00000001				
1029	24	2	3	S	RNTR	212	223				N	D	3	00000001				
1057	24	2	3	S	RNTR	222	234				N	D	3	00000001				
1067	24	2	3	S	RNTR	225	237				N	D	3	00000001				
1146	24	2	3	S	RNTR	289	303			2433			00000001					
1200	24	2	3	S	RNTR	414	432			2428			00000001	H	J	L		Right Mandible
1224	24	2	3	S	RNTR	429	449			2426			00000001	H	J	L		
1227	24	2	3	S	RNTR	430	446			2525			00000001					
1305	24	2	3	S	RNTR	462	480			2429			00000001	H	J	L		Left Mandible
1343	24	2	3	S	RNTR	495	512			2427			00000001					
1205	24	2	4	N	RNTR	415							00000001	H	J	H		Left Maxillae Gone, Escaped - included in estimate
1232	24	2	4	N	RNTR	431	451			975			00000001	H	J	M		Left Maxillae Damaged
1249	24	2	4	N	RNTR	437	455						00000001	H	J	M		Right Maxillae Gone

Table A1 Raw data for fish captured during the Bow River fisheries assessment, 21 to 24 August 2000.

Sample Number	Date (Aug-00)	Run	Section	Bank ^a	Species ^b	Fork Length (mm)	Total Length (mm)	Weight (g)	Recap	Floy Tag #	Clip at Capture Date Sect.	Clip at Release Date Sect.	Encounter	Injuries			Age (yrs)	Comments
														Cause ^c	Loc ^d	Sev ^e		
1261	24	2	4	N	RNTR	444	466	1290		2637			000000001	H	J	H		Right Maxillae Gone
1306	24	2	4	N	RNTR	462	484	1310					000000001	H	E	H		Right Eye Gone, Right Maxillae
1317	24	2	4	N	RNTR	487	507	1020					000000001					
991	24	2	4	S	RNTR	198	206	150					000000001					
1063	24	2	4	S	RNTR	224	236	195					000000001					
1068	24	2	4	S	RNTR	225	235	160					000000001					
1138	24	2	4	S	RNTR	261	272	240					000000001					
1143	24	2	4	S	RNTR	273	287	300					000000001					
1145	24	2	4	S	RNTR	285	295	285					000000001					
1198	24	2	4	S	RNTR	412	428	920					000000001					
1217	24	2	4	S	RNTR	420	443	720					000000001	H	J	L		Right Mandible
1223	24	2	4	S	RNTR	428	444	1055					000000001					
1276	24	2	4	S	RNTR	450	464	815					000000001	H	J	H		Blind, Major Jaw
1314	24	2	4	S	RNTR	465	470	1240					000000001					
1325	24	2	4	S	RNTR	477	496	1295					000000001					

^a N = North S = South^b B1 R = Bull trout RNTR = Brown trout B1 RB = Rainbow trout LNSC = Longnose sucker MNWH = Mountain whitefish RNTR = Rainbow trout^c D = Disease E = Electrofishing H = Handling P = Predation^d B = Body F = Fins G = Gill H = Head J = Jaw L = Tail^e L = Low M = Medium H = High

APPENDIX B

CPUE and Life History Data

Table B1. Summary of catch and catch-per-unit-effort (CPUE) for the main sportfish species captured in Bow River, 21-24 August, 2000.

Sampling Day	Sampling Run	Study Section	Sampling Effort		Brown trout			Rainbow trout			Mountain whitefish			TOTAL		
			(m)	(s)	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n	fish/km	fish/1000s
Day 1	1	1	1000	1104	6	6.00	5.43	4	4.00	3.62	4	4.00	3.62	14	14.00	12.68
		2	1000	1023	7	7.00	6.84	7	7.00	6.84	3	3.00	2.93	17	17.00	16.62
		3	1000	1156	5	5.00	4.33	12	12.00	10.38	24	24.00	20.76	41	41.00	35.47
		4	1000	1178	12	12.00	10.19	19	19.00	16.13	4	4.00	3.40	35	35.00	29.71
Run 1 Total			4000	4461	30	7.50	6.72	42	10.50	9.41	35	8.75	7.85	107	26.75	23.99
Day 2	2	1	1000	1341	23	23.00	17.15	16	16.00	11.93	17	17.00	12.68	56	56.00	41.76
		2	1000	1009	11	11.00	10.90	14	14.00	13.88	19	19.00	18.83	44	44.00	43.61
		3	1000	1281	15	15.00	11.71	21	21.00	16.39	24	24.00	18.74	60	60.00	46.84
		4	1000	1346	10	10.00	7.43	19	19.00	14.12	20	20.00	14.86	49	49.00	36.40
Run 2 Total			4000	4977	59	14.75	11.85	70	17.50	14.06	80	20.00	16.07	209	52.25	41.99
Day 1 Total			8000	9438	89	11.13	9.43	112	14.00	11.87	115	14.38	12.18	316	39.50	33.48
Day 3	1	1	1000	1323	12	12.00	9.07	13	13.00	9.83	17	17.00	12.85	42	42.00	31.75
		2	1000	1128	3	3.00	2.66	9	9.00	7.98	14	14.00	12.41	26	26.00	23.05
		3	1000	1249	9	9.00	7.21	17	17.00	13.61	20	20.00	16.01	46	46.00	36.83
		4	1000	1294	9	9.00	6.96	15	15.00	11.59	26	26.00	20.09	50	50.00	38.64
Run 1 Total			4000	4994	33	8.25	6.61	54	13.50	10.81	77	19.25	15.42	164	41.00	32.84
Day 4	2	1	1000	1333	12	12.00	9.00	15	15.00	11.25	20	20.00	15.00	47	47.00	35.26
		2	1000	1037	16	16.00	15.43	14	14.00	13.50	13	13.00	12.54	43	43.00	41.47
		3	1000	1232	6	6.00	4.87	16	16.00	12.99	38	38.00	30.84	60	60.00	48.70
		4	1000	1292	14	14.00	10.84	23	23.00	17.80	19	19.00	14.71	56	56.00	43.34
Run 2 Total			4000	4894	48	12.00	9.81	68	17.00	13.89	90	22.50	18.39	206	51.50	42.09
Day 2 Total			8000	9888	81	10.13	8.19	122	15.25	12.34	167	20.88	16.89	370	46.25	37.42
Day 3 Total	Day 4	1	1000	1313	12	12.00	9.14	12	12.00	9.14	9	9.00	6.85	33	33.00	25.13
		2	1000	1005	6	6.00	5.97	8	8.00	7.96	19	19.00	18.91	33	33.00	32.83
		3	1000	1289	3	3.00	2.36	10	10.00	7.88	41	41.00	32.31	54	54.00	42.55
		4	1000	1291	9	9.00	6.97	21	21.00	16.27	20	20.00	15.49	50	50.00	38.73
Run 1 Total			4000	4878	30	7.50	6.15	51	12.75	10.46	89	22.25	18.25	170	42.50	34.85
Day 4 Total	2	1	1000	1529	7	7.00	4.58	17	17.00	11.12	34	34.00	22.24	58	58.00	37.93
		2	1000	1044	4	4.00	3.83	7	7.00	6.70	17	17.00	16.28	28	28.00	26.82
		3	1000	1322	9	9.00	6.81	15	15.00	11.35	35	35.00	26.48	59	59.00	44.63
		4	1000	1258	5	5.00	3.97	15	15.00	11.92	26	26.00	20.67	46	46.00	36.57
Run 2 Total			4000	5153	25	6.25	4.85	54	13.50	10.48	112	28.00	21.73	191	47.75	37.07
Day 3 Total			8000	10031	55	6.88	5.48	105	13.13	10.47	201	25.13	20.04	381	45.13	35.99
Day 4 Total	Day 4	1	1000	1356	4	4.00	2.95	7	7.00	5.16	16	16.00	11.80	27	27.00	19.91
		2	1000	1001	1	1.00	1.00	6	6.00	5.99	6	6.00	5.99	13	13.00	12.99
		3	1000	1222	6	6.00	4.91	9	9.00	7.36	35	35.00	28.84	50	50.00	40.92
		4	1000	1313	11	11.00	8.38	17	17.00	12.95	10	10.00	7.62	38	38.00	28.94
Run 1 Total			4000	4892	22	5.50	4.50	39	9.75	7.97	67	18.75	13.70	128	32.00	26.17
Day 4 Total	2	1	1000	1676	4	4.00	2.39	18	18.00	10.74	29	29.00	17.30	51	51.00	30.43
		2	1000	1162	6	6.00	5.16	8	8.00	6.88	17	17.00	14.63	31	31.00	26.68
		3	1000	1422	8	8.00	5.63	19	19.00	13.36	33	33.00	23.21	60	60.00	42.19
		4	1000	1588	13	13.00	8.19	18	18.00	11.34	25	25.00	16.74	56	56.00	35.26
Run 2 Total			4000	5848	31	7.75	5.30	63	15.75	10.77	104	26.00	17.78	198	48.50	33.86
Day 4 Total			8000	10740	53	6.63	4.93	102	12.75	9.50	171	21.38	15.92	326	40.75	30.35
Section 1 Total (Days 1-4)			8000	10975	80	10.60	7.29	102	12.75	9.29	148	18.25	13.40	328	41.00	29.69
Section 2 Total (Days 1-4)			8000	8409	54	6.75	5.68	73	9.13	7.50	148	13.50	12.84	235	29.38	27.95
Section 3 Total (Days 1-4)			8000	10153	61	7.63	6.01	119	14.88	11.72	280	31.25	24.62	430	53.75	42.35
Section 4 Total (Days 1-4)			8000	10560	83	10.38	7.86	147	18.38	13.92	150	18.75	14.26	380	47.50	35.98
Grand Total			32000	40097	278	8.69	6.93	441	13.78	11.00	654	20.44	16.31	1373	42.91	34.24

NOTE: Fish of all sizes are included

Table B2. Catch and catch-per-unit-effort (CPUE) for three size-classes of brown trout captured in the Bow River, 21-24 August 2000.

Sampling Day	Study Section	Sampling Effort		150 - 250 mm Fork Length				251 - 388 mm Fork Length				>388 mm Fork Length				>149 mm Fork Length			
				CPUE		CPUE		CPUE		CPUE		CPUE		CPUE		CPUE		CPUE	
		(m)	(s)	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n	fish/km	fish/1000s	n
21-Aug-00	1	2000	2445	17	8.50	6.95	1	0.50	0.41	11	5.50	4.50	29	14.50	11.86				
	2	2000	2032	7	3.50	3.44	3	1.50	1.48	8	4.00	3.94	18	9.00	8.86				
	3	2000	2437	9	4.50	3.69	5	2.50	2.05	6	3.00	2.46	20	10.00	8.21				
	4	2000	2524	7	3.50	2.77	6	3.00	2.38	9	4.50	3.57	22	11.00	8.72				
Day 1 Total		8000	9438	40	5.00	4.24	15	1.88	1.59	34	4.25	3.60	89	11.13	9.43				
22-Aug-00	1	2000	2656	13	6.50	4.89	4	2.00	1.51	7	3.50	2.64	24	12.00	9.04				
	2	2000	2165	8	4.00	3.70	4	2.00	1.85	7	3.50	3.23	19	9.50	8.78				
	3	2000	2481	4	2.00	1.61	1	0.50	0.40	10	5.00	4.03	15	7.50	6.05				
	4	2000	2586	13	6.50	5.03	3	1.50	1.16	7	3.50	2.71	23	11.50	8.89				
Day 2 Total		8000	9888	38	4.75	3.84	12	1.50	1.21	31	3.88	3.14	81	10.13	8.19				
23-Aug-00	1	2000	2842	9	4.50	3.17	2	1.00	0.70	8	4.00	2.81	19	9.50	6.69				
	2	2000	2049	4	2.00	1.95	0	0.00	0.00	6	3.00	2.93	10	5.00	4.88				
	3	2000	2591	6	3.00	2.32	3	1.50	1.16	3	1.50	1.16	12	6.00	4.63				
	4	2000	2549	1	0.50	0.39	4	2.00	1.57	8	4.00	3.14	13	6.50	5.10				
Day 3 Total		8000	10031	20	2.50	1.99	9	1.13	0.90	25	3.13	2.49	54	6.75	5.38				
24-Aug-00	1	2000	3032	4	2.00	1.32	0	0.00	0.00	4	2.00	1.32	8	4.00	2.64				
	2	2000	2163	2	1.00	0.92	4	2.00	1.85	1	0.50	0.46	7	3.50	3.24				
	3	2000	2644	3	1.50	1.13	2	1.00	0.76	9	4.50	3.40	14	7.00	5.30				
	4	2000	2901	13	6.50	4.48	6	3.00	2.07	5	2.50	1.72	24	12.00	8.27				
Day 4 Total		8000	10740	22	2.75	2.05	12	1.50	1.12	19	2.38	1.77	53	6.63	4.93				
Section 1 Total (Days 1-4)		8000	10975	43	5.38	3.92	7	0.88	0.64	30	3.75	2.73	80	10.00	7.29				
Section 2 Total (Days 1-4)		8000	8409	21	2.63	2.50	11	1.38	1.31	22	2.75	2.62	54	6.75	6.42				
Section 3 Total (Days 1-4)		8000	10153	22	2.75	2.17	11	1.38	1.08	28	3.50	2.76	61	7.63	6.01				
Section 4 Total (Days 1-4)		8000	10560	34	4.25	3.22	19	2.38	1.80	29	3.63	2.75	82	10.25	7.77				
Grand Total		32000	40097	120	3.75	2.99	48	1.50	1.20	109	3.41	2.72	277	8.66	6.91				
CPUE		Mean ^a			3.75	3.03		1.50	1.20		3.41	2.75		8.66	6.98				
		Standard deviation ^a			1.31	1.18		0.31	0.29		0.83	0.80		2.31	2.18				

^a Means and standard deviations calculated using total CPUE values for each sampling day (n = 4).

Table B3. Catch and catch-per-unit-effort (CPUE) for three size-classes of rainbow trout captured in the Bow River, 21-24 August 2000.

Sampling Day	Study Section	Sampling Effort		150 - 250 mm Fork Length			251 - 380 mm Fork Length			>380 mm Fork Length			>149 mm Fork Length		
		(m)	(s)	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s
21-Aug-00	1	2000	2445	13	6.50	5.32	0	0.00	0.00	7	3.50	2.86	20	10.00	8.18
	2	2000	2032	11	5.50	5.41	2	1.00	0.98	8	4.00	3.94	21	10.50	10.33
	3	2000	2437	16	8.00	6.57	1	0.50	0.41	15	7.50	6.16	32	16.00	13.13
	4	2000	2524	10	5.00	3.96	4	2.00	1.58	24	12.00	9.51	38	19.00	15.06
Day 1 Total		8000	9406	50	6.25	5.32	7	0.88	0.74	54	6.75	5.74	111	13.88	11.80
22-Aug-00	1	2000	2656	10	5.00	3.77	5	2.50	1.88	13	6.50	4.89	28	14.00	10.54
	2	2000	2165	12	6.00	5.54	3	1.50	1.39	8	4.00	3.70	23	11.50	10.62
	3	2000	2481	18	9.00	7.26	5	2.50	2.02	10	5.00	4.03	33	16.50	13.30
	4	2000	2586	13	6.50	5.03	2	1.00	0.77	23	11.50	8.89	38	19.00	14.69
Day 2 Total		8000	9888	53	6.63	5.36	15	1.88	1.52	54	6.75	5.46	122	15.25	12.34
23-Aug-00	1	2000	2842	8	4.00	2.81	6	3.00	2.11	15	7.50	5.28	29	14.50	10.20
	2	2000	2049	8	4.00	3.90	0	0.00	0.00	7	3.50	3.42	15	7.50	7.32
	3	2000	2591	12	6.00	4.63	1	0.50	0.39	12	6.00	4.63	25	12.50	9.65
	4	2000	2549	16	8.00	6.28	7	3.50	2.75	13	6.50	5.10	36	18.00	14.12
Day 3 Total		8000	10031	44	5.50	4.39	14	1.75	1.40	47	5.88	4.69	105	13.13	10.47
24-Aug-00	1	2000	3032	9	4.50	2.97	3	1.50	0.99	13	6.50	4.29	25	12.50	8.25
	2	2000	2163	7	3.50	3.24	1	0.50	0.46	6	3.00	2.77	14	7.00	6.47
	3	2000	2644	11	5.50	4.16	3	1.50	1.13	14	7.00	5.30	28	14.00	10.59
	4	2000	2901	9	4.50	3.10	5	2.50	1.72	21	10.50	7.24	35	17.50	12.06
Day 4 Total		8000	10740	36	4.50	3.35	12	1.50	1.12	54	6.75	5.03	102	12.75	9.50
Section 1 Total (Days 1-4)		8000	10975	40	5.00	3.64	14	1.75	1.28	48	6.00	4.37	102	12.75	9.29
Section 2 Total (Days 1-4)		8000	8409	38	4.75	4.52	6	0.75	0.71	29	3.63	3.45	73	9.13	8.68
Section 3 Total (Days 1-4)		8000	10153	57	7.13	5.61	10	1.25	0.98	51	6.38	5.02	118	14.75	11.62
Section 4 Total (Days 1-4)		8000	10560	48	6.00	4.55	18	2.25	1.70	81	10.13	7.67	147	18.38	13.92
Grand Total		32000	40065	183	5.72	4.57	48	1.50	1.20	209	6.53	5.22	440	13.75	10.98
CPUE Mean ^a					5.72	4.60		1.50	1.19		6.53	5.23		13.75	11.03
Standard deviation ^a					0.94	0.95		0.44	0.34		0.44	0.47		1.10	1.29

^a Means and standard deviations calculated using total CPUE values for each sampling day (n = 4).

Table B4. Catch and catch-per-unit-effort (CPUE) for three size-classes of mountain whitefish captured in the Bow River, 21-24 August 2000.

Sampling Day	Study Section	Sampling Effort		150 - 199 mm Fork Length			200 - 280 mm Fork Length			>280 mm Fork Length			>149 mm Fork Length		
		(m)	(s)	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s	n	fish/km	CPUE fish/1000s
21-Aug-00	1	2000	2445	6	3.00	2.45	8	4.00	3.27	7	3.50	2.86	21	10.50	8.59
	2	2000	2032	2	1.00	0.98	5	2.50	2.46	15	7.50	7.38	22	11.00	10.83
	3	2000	2437	12	6.00	4.92	18	9.00	7.39	18	9.00	7.39	48	24.00	19.70
	4	2000	2524	5	2.50	1.98	12	6.00	4.75	7	3.50	2.77	24	12.00	9.51
Day 1 Total		8000	9438	25	3.13	2.65	43	5.38	4.56	47	5.88	4.98	115	14.38	12.18
22-Aug-00	1	2000	2656	1	0.50	0.38	17	8.50	6.40	19	9.50	7.15	37	18.50	13.93
	2	2000	2165	2	1.00	0.92	8	4.00	3.70	17	8.50	7.85	27	13.50	12.47
	3	2000	2481	5	2.50	2.02	26	13.00	10.48	27	13.50	10.88	58	29.00	23.38
	4	2000	2586	6	3.00	2.32	28	14.00	10.83	11	5.50	4.25	45	22.50	17.40
Day 2 Total		8000	9888	14	1.75	1.42	79	9.88	7.99	74	9.25	7.48	167	20.88	16.89
23-Aug-00	1	2000	2842	5	2.50	1.76	19	9.50	6.69	19	9.50	6.69	43	21.50	15.13
	2	2000	2049	1	0.50	0.49	12	6.00	5.86	23	11.50	11.22	36	18.00	17.57
	3	2000	2591	1	0.50	0.39	39	19.50	15.05	36	18.00	13.89	76	38.00	29.33
	4	2000	2549	4	2.00	1.57	22	11.00	8.63	20	10.00	7.85	46	23.00	18.05
Day 3 Total		8000	10031	11	1.38	1.10	92	11.50	9.17	98	12.25	9.77	201	25.13	20.04
24-Aug-00	1	2000	3032	4	2.00	1.32	14	7.00	4.62	27	13.50	8.91	45	22.50	14.84
	2	2000	2163	1	0.50	0.46	9	4.50	4.16	13	6.50	6.01	23	11.50	10.63
	3	2000	2644	3	1.50	1.13	31	15.50	11.72	34	17.00	12.86	68	34.00	25.72
	4	2000	2901	2	1.00	0.69	14	7.00	4.83	19	9.50	6.55	35	17.50	12.06
Day 4 Total		8000	10740	10	1.25	0.93	68	8.50	6.33	93	11.63	8.66	171	21.38	15.92
Section 1 Total (Days 1-4)		8000	10975	16	2.00	1.46	58	7.25	5.28	72	9.00	6.56	146	18.25	13.30
Section 2 Total (Days 1-4)		8000	8409	6	0.75	0.71	34	4.25	4.04	68	8.50	8.09	108	13.50	12.84
Section 3 Total (Days 1-4)		8000	10153	21	2.63	2.07	114	14.25	11.23	115	14.38	11.33	250	31.25	24.62
Section 4 Total (Days 1-4)		8000	10560	17	2.13	1.61	76	9.50	7.20	57	7.13	5.40	150	18.75	14.20
Grand Total		32000	40097	60	1.88	1.50	282	8.81	7.03	312	9.75	7.78	654	20.44	16.31
CPUE		Mean ^a			1.88	1.52		8.81	7.01		9.75	7.72		20.44	16.26
		Standard deviation ^a			0.86	0.78		2.60	2.01		2.89	2.05		4.46	3.23

^a Means and standard deviations calculated using total CPUE values for each sampling day (n = 4).

Table B5. Size statistics for brown trout, rainbow trout, and mountain whitefish captured in the Bow River, August 2000.

Species	Size-Class (mm FL)	Fork Length (mm)				Weight (g)				Condition Factor			
		n	Mean	S.D. ¹	Range	n	Mean	S.D. ¹	Range	n	Mean	S.D. ¹	Range
Brown trout	150-250	116	227	16	178 - 250	116	154	36	65 - 245	116	1.29	0.12	1.00 - 1.57
	251-388	46	294	53	251 - 385	46	355	208	150 - 750	46	1.28	0.11	0.89 - 1.55
	>388	103	469	56	390 - 624	103	1320	443	660 - 2520	103	1.24	0.10	0.98 - 1.46
	All	265	333	119	178 - 624	265	642	618	65 - 2520	265	1.27	0.11	0.89 - 1.57
Rainbow trout	150-250	176	212	21	158 - 249	175	136	42	40 - 220	175	1.38	0.19	0.80 - 1.93
	251-380	45	308	49	251 - 380	44	393	169	195 - 770	44	1.30	0.16	0.94 - 1.59
	>380	190	455	39	381 - 590	186	1111	281	495 - 2330	186	1.17	0.14	0.70 - 1.52
	All	411	335	120	158 - 590	405	611	508	40 - 2330	405	1.27	0.20	0.70 - 1.93
Mountain whitefish	150-199	55	183	11	155 - 199	51	79	21	40 - 120	51	1.26	0.21	0.89 - 1.78
	200-280	268	228	22	200 - 280	266	174	65	75 - 420	266	1.42	0.17	0.81 - 1.93
	>280	290	361	51	281 - 465	288	921	423	305 - 1945	288	1.81	0.20	1.26 - 2.41
	All	613	287	81	155 - 465	605	522	482	40 - 1945	605	1.59	0.28	0.81 - 2.41

¹ S.D. = standard deviation

Table B6. Length-frequency (%) distribution of sport fish sampled in the Bow River, August 2000.

Fork Length Interval (mm)	Brown trout	Rainbow trout	Mountain whitefish	Bull trout	Burbot
70 - 79					
80 - 89					
90 - 99					
100 - 109					
110 - 119					
120 - 129					
130 - 139					
140 - 149					
150 - 159		0.2	0.3		
160 - 169		0.7	1.0		
170 - 179	0.4	2.9	1.5		
180 - 189	0.8	2.9	3.1		
190 - 199	0.8	5.6	3.1		
200 - 209	4.5	5.1	8.8		
210 - 219	5.7	7.3	8.5		
220 - 229	9.8	7.5	10.6		
230 - 239	10.6	6.3	6.4		
240 - 249	9.4	4.1	2.1		
250 - 259	9.4	2.4	1.3	33.3	
260 - 269	3.0	1.2	2.4	33.3	
270 - 279	0.4	1.0	3.4		
280 - 289	1.5	0.7	2.0		
290 - 299		0.2	3.1	33.3	
300 - 309		0.5	4.9		
310 - 319			5.5		
320 - 329		1.0	3.1		
330 - 339		0.5	1.1		
340 - 349	0.4		1.6		
350 - 359		1.0	1.1		
360 - 369	0.4	0.5	2.1		
370 - 379	1.1	1.5	2.6		
380 - 389	3.0	1.0	1.6		
390 - 399	4.5	2.4	3.4		
400 - 409	4.2	1.9	3.6		
410 - 419	2.6	3.6	3.9		
420 - 429	2.3	3.9	3.8		
430 - 439	1.1	5.1	2.0		
440 - 449	0.4	4.1	1.3		
450 - 459	0.8	6.3	0.5		25.0
460 - 469	1.5	3.6	0.2		
470 - 479	2.3	2.7			
480 - 489	4.2	2.9			
490 - 499	2.6	2.4			
500 - 509	1.5	2.9			
510 - 519	2.6	1.0			
520 - 529	2.6	0.5			
530 - 539	2.6	1.2			50.0
540 - 549	1.1	0.2			
550 - 559		0.2			
560 - 569					
570 - 579	0.8	0.2			
580 - 589	0.4				
590 - 599		0.2			
600 - 609	0.4				
610 - 619					
620 - 629	0.4				
630 - 639					
640 - 649					25.0
650 - 659					
660 - 669					
670 - 679					
680 - 689					
Sample Size	265	411	613	3	4

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
22	2	BNTR	180	70		SC	1
23	1	BNTR	204	115	3130	SC	1
22	3	BNTR	207	125	3104	SC	1
22	1	BNTR	212	115	2843	SC	1
21	1	BNTR	223	135	2973	SC	1
22	4	BNTR	230	145	2836	SC	1
21	2	BNTR	190	75		SC	2
23	1	BNTR	200	95	3122	SC	2
24	4	BNTR	212	110	2639	SC	2
22	3	BNTR	215	130	2891	SC	2
23	1	BNTR	215	110	3129	SC	2
23	1	BNTR	216	130	3496	SC	2
22	1	BNTR	218	120	2800	SC	2
24	1	BNTR	226	175	2503	SC	2
22	1	BNTR	227	155	2797	SC	2
21	1	BNTR	228	170	2741	SC	2
21	1	BNTR	230	155	2722	SC	2
23	1	BNTR	232	165	3126	SC	2
23	1	BNTR	234	180	3125	SC	2
22	2	BNTR	237	175	2876	SC	2
21	1	BNTR	240	210	2961	SC	2
29	1	BNTR	241	125	B2	SO	2
21	3	BNTR	244	210	3039	SC	2
21	1	BNTR	245	180	2967	SC	2
23	2	BNTR	246	175	3205	SC	2
23	3	BNTR	248	180	3161	SC	2
24	1	BNTR	249	175	2667	SC	2
24	2	BNTR	252	210	2514	SC	2
22	2	BNTR	254	225	2874	SC	2
22	2	BNTR	257	205	3100	SC	2
22	1	BNTR	258	210	2791	SC	2
29	1	BNTR	260	185	B3	SO	2
22	2	BNTR	261	250	2877	SC	2
23	4	BNTR	265	265	3233	SC	2
30	2	BNTR	268	270	B9	SO	2
30	4	BNTR	281	320	B11	SO	2
30	6	BNTR	281	300	B13	SO	2
21	3	BNTR	284	285	3036	SC	2
23	4	BNTR	271	200	3245	SC	3
22	3	BNTR	380	740	3358	SC	3
24	3	BNTR	380	750	2432	SC	3
24	2	BNTR	382	660	2509	SC	3
23	1	BNTR	384	665	3486	SC	3
29	1	BNTR	384	680	B1	SO	3
23	4	BNTR	392	720	3240	SC	3
24	3	BNTR	399	845	2621	SC	3
23	1	BNTR	402	900	3251	SC	3
21	1	BNTR	404	890	2966	SC	3
30	1	BNTR	406	895	B6	SO	3
24	3	BNTR	414	900	2651	SC	3
24	1	BNTR	415	915	2501	SC	3
23	3	BNTR	427	1080	3336	SC	3
21	2	BNTR	429	1020	2706	SC	3

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
23	2	BNTR	435	915	3203	SC	3
23	1	BNTR	385	700	3263	SC	4
22	4	BNTR	393	775	2828	SC	4
24	4	BNTR	397	795	2531	SC	4
30	4	BNTR	408	1090	B12	SO	4
24	1	BNTR	410	825	2406	SC	4
23	1	BNTR	429	1015	3252	SC	4
30	3	BNTR	438	1360	B10	SO	4
23	4	BNTR	440	1245	3239	SC	4
24	1	BNTR	461	1315	2604	SC	4
30	1	BNTR	461	1245	B5	SO	4
30	2	BNTR	462	1235	B7	SO	4
24	3	BNTR	468	1190	2631	SC	4
23	3	BNTR	471	1510	3276	SC	4
23	1	BNTR	476	1210	3309	SC	4
22	1	BNTR	480	1305	3096	SC	4
23	1	BNTR	480	1225	3488	SC	4
30	2	BNTR	480	1540	B8	SO	4
30	1	BNTR	480	1310	B4	SO	4
23	2	BNTR	500	1670	3146	SC	4
24	3	BNTR	390	755	2431	SC	5
23	1	BNTR	470	1340	3253	SC	5
21	1	BNTR	480	1430	2963	SC	5
22	3	BNTR	481	1305	3356	SC	5
23	2	BNTR	485	1295	3207	SC	5
22	3	BNTR	487	1560	3355	SC	5
21	3	BNTR	492	1535	2993	SC	5
23	4	BNTR	492	1370	3234	SC	5
24	3	BNTR	493	1505	2420	SC	5
24	3	BNTR	520	1685	2422	SC	5
21	1	BNTR	505	1520	2964	SC	6
23	2	BNTR	507	1560	3273	SC	6
23	2	BNTR	510	1630	3269	SC	6
23	4	BNTR	511	1630	3192	SC	6
21	4	BNTR	512	1470	2711	SC	6
22	3	BNTR	520	1895	3357	SC	6
23	2	BNTR	523	1615	3201	SC	6
23	4	BNTR	539	1845	3235	SC	6
21	3	BNTR	540	2030	2995	SC	6
21	3	BNTR	586	2220	3027	SC	6
23	1	BNTR	516	1470	3491	SC	7
24	1	BNTR	525	1900	2502	SC	7
22	3	BNTR	534	1810	3354	SC	7
23	1	BNTR	570	2115	3490	SC	8
30	1	MNWH	118	35	M30	SO	1
29	1	MNWH	150	45	M8	SO	1
29	4	MNWH	150	40	M20	SC	1
29	4	MNWH	155	50	M21	SO	1
23	1	MNWH	180	65		SC	1
21	1	MNWH	180	70		SC	1
22	3	MNWH	188	85		SC	1
21	1	MNWH	195	90		SC	1
22	1	MNWH	199	110		SC	1
22	4	MNWH	201	195		SC	1

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
23	2	MNWH	204	110	3141	SC	1
22	3	MNWH	208	120		SC	1
22	3	MNWH	210	105	2822	SC	1
21	2	MNWH	211	145	2987	SC	1
23	2	MNWH	217	135	3139	SC	1
22	3	MNWH	220	155	2825	SC	1
22	4	MNWH	224	105	2838	SC	1
29	4	MNWH	225	180	M19	SO	1
21	2	MNWH	230	185	2986	SC	1
23	2	MNWH	232	150	3210	SC	1
29	3	MNWH	240	195	M18	SO	2
30	1	MNWH	252	240	M24	SO	2
23	1	MNWH	266	260	3494	SC	2
23	2	MNWH	273	310	3202	SC	2
21	2	MNWH	275	310	2989	SC	2
23	3	MNWH	278	365	3222	SC	2
23	3	MNWH	279	350	3150	SC	2
23	1	MNWH	283	310	3121	SC	2
21	2	MNWH	289	415	2982	SC	2
22	3	MNWH	295	415	3101	SC	2
22	2	MNWH	296	430	2812	SC	2
22	1	MNWH	303	460	3091	SC	2
22	2	MNWH	305	475	2807	SC	2
23	2	MNWH	306	515	3208	SC	2
21	2	MNWH	315	550	2974	SC	2
22	2	MNWH	317	560	2864	SC	2
21	2	MNWH	319	540		SC	2
22	2	MNWH	325	585	2865	SC	2
22	3	MNWH	336	520	2819	SC	2
30	1	MNWH	255	315	M23	SO	3
29	2	MNWH	272	335	M12	SO	3
22	2	MNWH	275	320	2810	SC	3
29	1	MNWH	277	320	M7	SO	3
29	1	MNWH	280	380	M6	SO	3
30	1	MNWH	290	375	M22	SO	3
30	1	MNWH	292	415	M28	SO	3
22	1	MNWH	297	450	3092	SC	3
21	2	MNWH	300	500	2985	SC	3
29	2	MNWH	315	535	M11	SO	3
29	3	MNWH	340	705	M17	SO	3
29	3	MNWH	342	770	M16	SO	3
30	1	MNWH	345	810	M29	SO	3
21	2	MNWH	354	785	2984	SC	3
21	3	MNWH	360	820	2994	SC	3
23	3	MNWH	361	835	3214	SC	3
22	2	MNWH	373	880	2804	SC	3
22	2	MNWH	290	350	3099	SC	4
23	3	MNWH	320	535	3149	SC	4
22	3	MNWH	323	620	2888	SC	4
22	1	MNWH	326	600	3090	SC	4
30	2	MNWH	330	590	M32	SO	4
22	2	MNWH	340	700	2808	SC	4
23	3	MNWH	363	865	3213	SC	4
29	3	MNWH	366	860	M15	SO	4

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
23	2	MNWH	370	1085	3134	SC	4
21	2	MNWH	370	850	2983	SC	4
23	3	MNWH	373	965	3218	SC	4
22	4	MNWH	399	1260	2833	SC	5
22	3	MNWH	404	1280	2820	SC	5
23	2	MNWH	405	1475	3132	SC	5
29	1	MNWH	433	1590	M4	SO	5
30	1	MNWH	368	995	M27	SO	6
30	2	MNWH	378	925	M31	SO	6
29	1	MNWH	378	1135	M1	SC	6
24	2	MNWH	379	880	2671	SC	6
23	2	MNWH	384	1165	3135	SC	6
23	1	MNWH	384	950	3492	SC	6
22	2	MNWH	390	1295	2803	SC	6
30	1	MNWH	393	930	M26	SO	6
22	2	MNWH	405	1110	2866	SC	6
29	2	MNWH	407	1275	M10	SO	6
29	2	MNWH	410	1400	M9	SO	6
22	1	MNWH	412	1425	2859	SC	6
22	1	MNWH	415	1440	2787	SC	6
29	3	MNWH	415	1270	M14	SO	6
22	4	MNWH	418	1370	2826	SC	6
22	1	MNWH	427	1605	3086	SC	6
23	2	MNWH	428	1360	3133	SC	6
22	4	MNWH	430	1570	2835	SC	6
23	3	MNWH	434	1520	3217	SC	6
22	1	MNWH	435	1410	3088	SC	6
22	4	MNWH	445	1685	2830	SC	6
23	2	MNWH	390	985	3140	SC	7
29	1	MNWH	392	1090	M5	SO	7
22	2	MNWH	408	1340	2862	SC	7
22	1	MNWH	411	1405	3087	SC	7
29	1	MNWH	420	1370	M2	SO	7
30	1	MNWH	460	1855	M25	SO	7
29	1	MNWH	395	970	M3	SO	8
23	2	MNWH	424	1565	3499	SC	8
23	1	MNWH	455	1630	3493	SC	8
22	2	MNWH	410	1235	2805	SC	13
30	3	RNTR	155	50	R26	SO	1
29	4	RNTR	173	85	R9	SO	1
29	1	RNTR	176	75	R4	SO	1
21	3	RNTR	177	60		SC	1
22	2	RNTR	183	80		SC	1
30	1	RNTR	187	90	R18	SO	1
30	4	RNTR	190	105	R29	SO	1
22	3	RNTR	204	125	3102	SC	1
22	2	RNTR	208	120	2878	SC	1
22	3	RNTR	214	135	2899	SC	1
23	1	RNTR	220	145	3124	SC	1
22	3	RNTR	230	190	2887	SC	1
21	1	RNTR	195	105		SC	2
30	1	RNTR	195	110	R19	SO	2
30	3	RNTR	198	105	R25	SO	2
30	3	RNTR	212	145	R24	SO	2

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
30	2	RNTR	226	165	R22	SO	2
30	4	RNTR	232	190	R28	SO	2
21	2	RNTR	235	170	2990	SC	2
21	1	RNTR	239	150	2970	SC	2
29	4	RNTR	240	210	R10	SO	2
22	1	RNTR	244	205	3093	SC	2
30	1	RNTR	245	220	R17	SO	2
23	3	RNTR	257	225	3231	SC	2
23	1	RNTR	289	295	3489	SC	2
30	4	RNTR	295	410	R27	SO	2
22	3	RNTR	301	385	2890	SC	2
30	3	RNTR	307	450	R23	SO	2
22	1	RNTR	324	345	3095	SC	2
29	3	RNTR	335	500	R7	SO	2
22	1	RNTR	380	770	2784	SC	2
21	4	RNTR	400	775	2715	SC	2
30	2	RNTR	344	605	R21	SO	3
22	1	RNTR	359	535	2844	SC	3
30	2	RNTR	360	645	R20	SO	3
30	1	RNTR	374	590	R16	SO	3
22	2	RNTR	379	705	2809	SC	3
30	5	RNTR	380	810	R30	SO	3
21	3	RNTR	390	785	3034	SC	3
23	1	RNTR	391	840	3487	SC	3
21	2	RNTR	391	635	2981	SC	3
29	2	RNTR	402	830	R5	SO	3
29	1	RNTR	402	860	R1	SO	3
22	4	RNTR	405	925	3111	SC	3
23	2	RNTR	407	1000	3145	SC	3
22	1	RNTR	407	820	3084	SC	3
23	1	RNTR	410	895	3485	SC	3
23	1	RNTR	413	865	3123	SC	3
29	1	RNTR	413	815	R3	SO	3
22	1	RNTR	416	795	2842	SC	3
21	2	RNTR	420	960	2979	SC	3
22	3	RNTR	429	925	3105	SC	3
21	4	RNTR	433	880	2779	SC	3
22	4	RNTR	435	955	3112	SC	3
22	1	RNTR	444	1245	2841	SC	3
21	4	RNTR	451	935	2714	SC	3
21	4	RNTR	452	1200	2713	SC	3
22	4	RNTR	405	495	2839	SC	4
29	4	RNTR	424	850	R13	SO	4
29	4	RNTR	430	1015	R11	SO	4
21	2	RNTR	433	900	2975	SC	4
21	3	RNTR	434	855	3029	SC	4
22	2	RNTR	440	1050	2872	SC	4
22	1	RNTR	444	815	2785	SC	4
29	1	RNTR	446	1010	R2	SO	4
22	2	RNTR	450	1025	2871	SC	4
22	2	RNTR	453	1135	2811	SC	4
22	1	RNTR	454	1070	2798	SC	4
23	2	RNTR	469	1205	3144	SC	4
21	4	RNTR	495	1310	2718	SC	4

Table B7. Raw data for aged fish captured in the Bow River, August 2000.

Date Aug-00	Section	Species	FL (mm)	WT (g)	Sample # ^a	Structure ^b	Age (yrs)
21	1	RNTR	496	1450	2721	SC	4
21	4	RNTR	508	1405	2781	SC	4
21	1	RNTR	518	1570	2724	SC	4
22	4	RNTR	520	2065	3114	SC	4
22	1	RNTR	423	845	3085	SC	5
21	3	RNTR	432	1040	2708	SC	5
29	3	RNTR	435	1640	R8	SO	5
22	2	RNTR	445	890	2806	SC	5
30	1	RNTR	448	1045	R15	SO	5
21	3	RNTR	455	940	3030	SC	5
22	2	RNTR	458	1060	2863	SC	5
22	1	RNTR	459	985	2792	SC	5
21	3	RNTR	459	1200	3032	SC	5
21	4	RNTR	461	1130	2709	SC	5
22	4	RNTR	465	1295	3113	SC	5
23	1	RNTR	465	1310	3484	SC	5
29	4	RNTR	465	1130	R12	SO	5
29	4	RNTR	470	1225	R14	SO	5
22	2	RNTR	483	1040	3098	SC	5
22	4	RNTR	502	1195	2827	SC	5
22	4	RNTR	505	1385	2837	SC	5
29	2	RNTR	511	1350	R6	SO	5
21	4	RNTR	530	1675	2776	SC	5
22	3	RNTR	535	1620	2896	SC	5
22	3	RNTR	523	1630	3361	SC	6
22	2	RNTR	539	1910	2869	SC	6

^a Indicate either Floy tag number or Alberta Environment identification tag (e.g., R12). Blanks indicate fish which were fin clipped during the Bow River population estimate study.

^b SC = scale; SO = scale and otolith

Table B8. Age-specific fork lengths and weights of brown trout and rainbow trout captured in the Bow River, August 2000.

Species	Age (years)	Fork Length (mm)				Weight (g)			
		n	Mean	S.D. ^a	Range	n	Mean	S.D. ^a	Range
Brown trout (n = 97)	1	6	209	17	180 - 230	6	118	26	70 - 145
	2	32	241	23	190 - 284	32	185	60	75 - 320
	3	16	394	37	271 - 435	16	798	203	200 - 1080
	4	19	448	35	385 - 500	19	1187	267	700 - 1670
	5	10	479	34	390 - 520	10	1378	252	755 - 1685
	6	10	525	25	505 - 586	10	1742	246	1470 - 2220
	7	3	525	9	516 - 534	3	1727	227	1470 - 1900
	8	1	570	-	570 - 570	1	2115	-	2115 - 2115
Rainbow trout (n = 96)	1	12	193	22	155 - 230	12	105	40	50 - 190
	2	20	267	59	195 - 400	20	297	201	105 - 775
	3	25	404	28	344 - 452	25	842	170	535 - 1245
	4	17	460	35	405 - 520	17	1131	357	495 - 2065
	5	20	470	31	423 - 535	20	1200	242	845 - 1675
	6	2	531	11	523 - 539	2	1770	198	1630 - 1910
Mountain whitefish (n = 102)	1	20	195	31	118 - 232	20	109	49	35 - 195
	2	19	292	25	240 - 336	19	411	119	195 - 585
	3	17	313	38	255 - 373	17	562	217	315 - 880
	4	11	343	27	290 - 373	11	729	215	350 - 1085
	5	4	410	15	399 - 433	4	1401	159	1260 - 1590
	6	21	406	23	368 - 445	21	1272	241	880 - 1685
	7	6	414	26	390 - 460	6	1341	303	985 - 1855
	8	3	425	30	395 - 455	3	1388	364	970 - 1630
	13	1	410	-	410 - 410	1	1235	-	1235 - 1235

^a standard deviation

Table B9 Number of injured fish recorded during fish population assessment in the Bow River, August 2000.

Cause	Location	Severity (L/M/H) ^a	Brown Trout Size-Class (mm FL)				Rainbow Trout Size-Class (mm FL)				Mountain Whitefish Size-Class (mm FL)				Total
			150-250	251-388	>388	Total	150-250	251-380	>380	Total	150-199	200-280	>280	Total	
Disease	Fin	M							1	1					1
	Gill	L							1	1					1
Electrofishing	Subtotal								2	2					2
	Body	L					2		5	7		1	5	6	13
		M													
	Eye	L					1			1			1	1	1
		M										1	1	1	1
		H										1	1	1	1
	Gill	H													
	Head	L										1		1	1
	Jaw	L										1		1	1
	Subtotal						3		5	8		3	9	12	20
Hooking	Eye	L			1	1		1		2					3
		M				2		2	1	5					5
		H	2		3	5	3	6	18	27		1		1	33
	Gill	L	1			1				1					2
	Head	H						2		2					2
	Jaw	L	6	2	11	19	5	5	37	47		1	5	6	72
		M	2	1	6	9	2	1	15	18			6	6	33
		H					1		20	21			2	2	23
	Subtotal		11	3	21	35	15	17	91	123		1	14	15	173
	Body	L			1	1			1	1			3	3	5
Predation		H			1	1							1	1	2
	Tail	L											1	1	1
	Subtotal				2	2			1	1			5	5	8
	Fish with No Injuries		107	43	81	231	160	30	104	294	55	264	262	581	1106
	Total Number of Injuries		11	3	23	37	18	17	99	134		4	28	32	203
	Fish Examined^b		116	46	103	265	176	45	190	411	55	268	290	613	1289
	% Injured^c		7.8	6.5	21.4	12.8	9.1	33.3	45.3	28.5	0.0	1.5	9.7	5.2	14.2

^a L = Low; M = Moderate; H = High

^b Fish with multiple injuries are reported separately for each injury type.

^c (Fish Examined-Fish with No Injuries)/Fish Examined*100

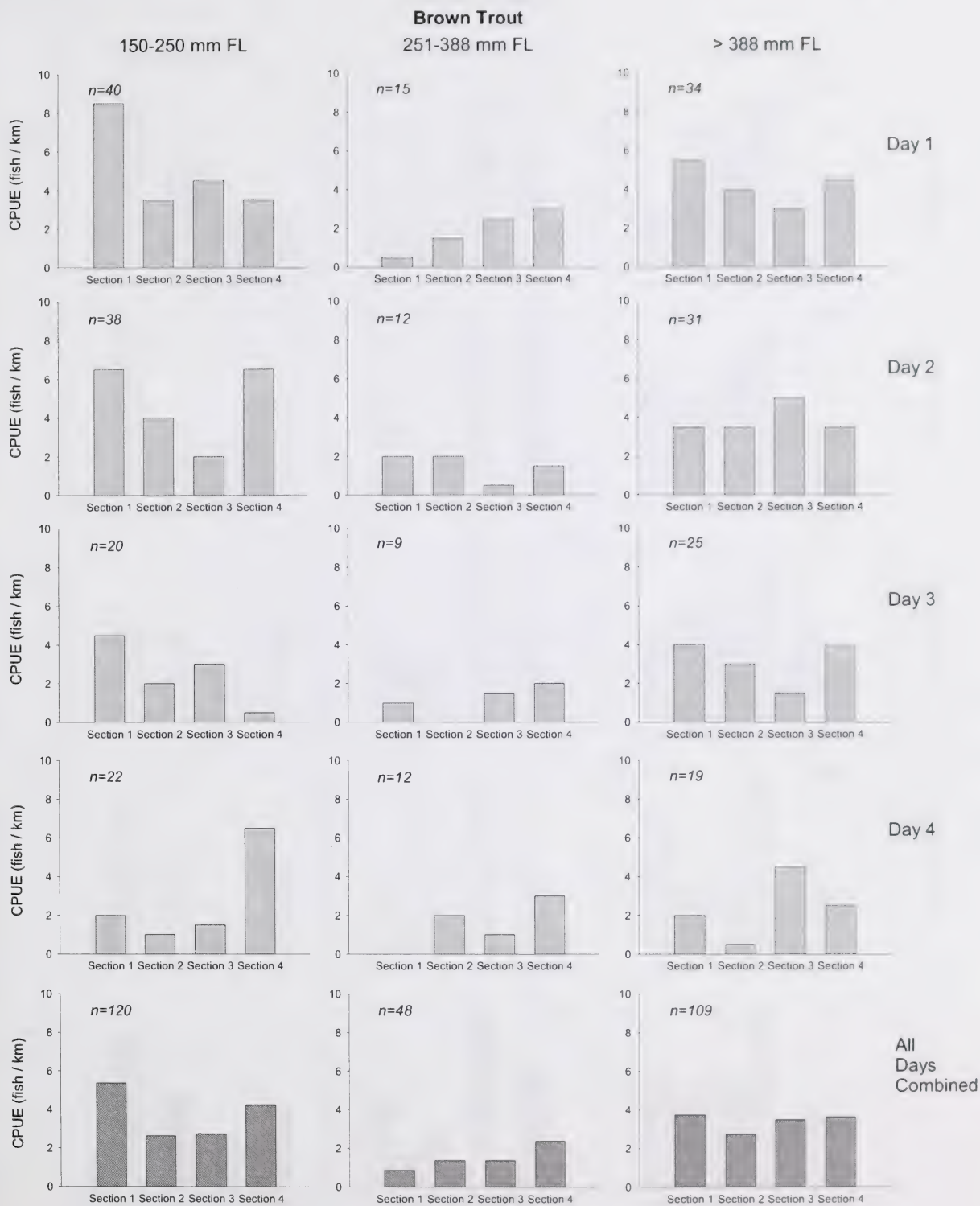


Figure B1 Relative abundance, expressed as catch-per-unit-effort (CPUE), of brown trout size-classes in the Bow River, August 2000.

Rainbow Trout

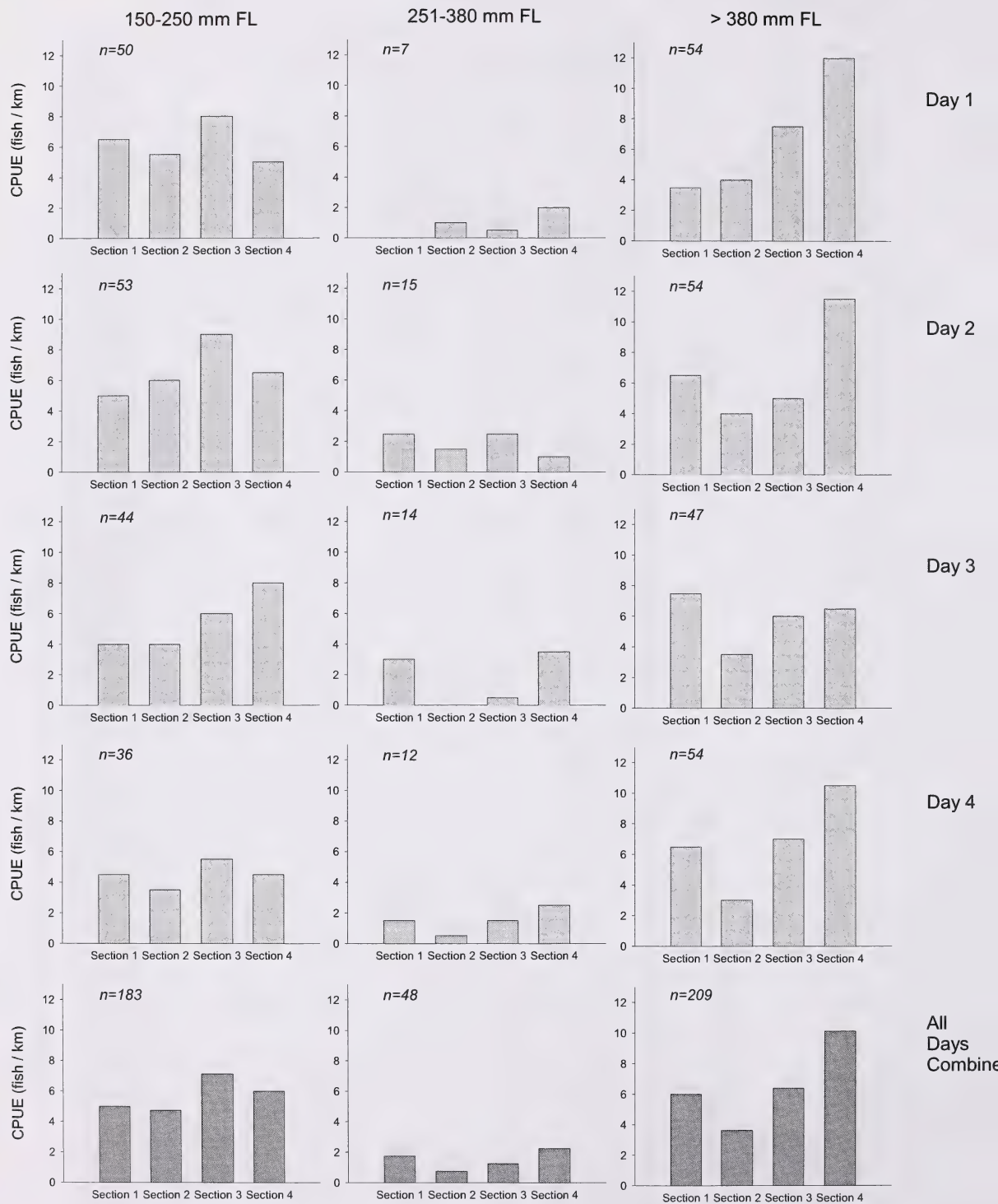


Figure B2

Relative abundance, expressed as catch-per-unit-effort (CPUE), of rainbow trout size-classes in the Bow River, August 2000.

Mountain Whitefish

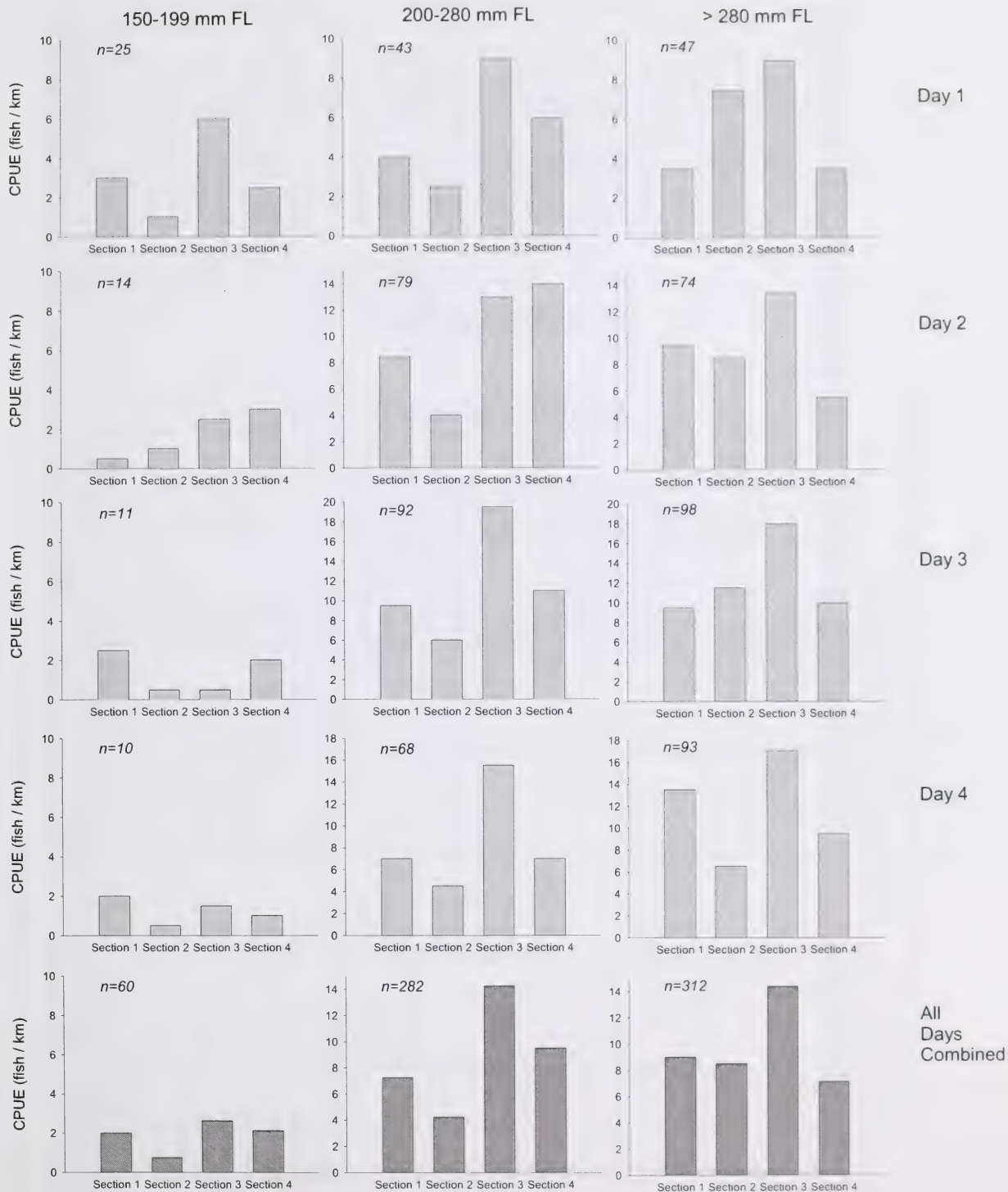


Figure B3 Relative abundance, expressed as catch-per-unit-effort (CPUE), of mountain whitefish size-classes in the Bow River, August 2000 (note changes in y-axis scales).

APPENDIX C

Population Estimate Data

Table C2.

Comparison of population estimates of brown trout and rainbow trout size-classes (1982-2000) and mountain whitefish size classes (1999-2000) in the Bow River calculated using the Darroch method.

Species	Year	>388/380/280 mm FL			Total		
		fish/km	95% CI		fish/km	95% CI	
			lower	upper		lower	upper
Brown trout	1982	30	16	44	352	246	410
	1983	61	5	128	693	469	916
	1984	65	28	98	339	253	426
	1985	111	60	157	378	263	493
	1988	115	61	160	583	454	686
	1990	52	23	82	503	309	698
	1991	40	17	64	571	487	655
	1992	69	11	139	528	375	681
	1999	117	84	175	267	199	370
	2000	202	103	427	660	397	1131
Rainbow trout	1982	91	65	117	165	121	208
	1983	151	101	201	486	357	616
	1984	98	62	133	1010	827	1192
	1985	189	139	239	576	486	667
	1988	217	177	258	539	451	625
	1990	86	67	105	359	287	432
	1991	121	92	151	292	224	361
	1992	368	220	518	966	741	1192
	1999	176	108	307	224	139	382
	2000	223	155	337	681	491	964
Mountain whitefish	1999	132	82	229	853	584	1273
	2000	432	297	649	1143	851	1557

Table C3. Comparison of population estimates of brown trout, rainbow trout, and mountain whitefish size-classes in the Bow River calculated using the Null method, 1990-2000.

Species	Year	Small ^a			Intermediate			Large			Total ^b		
		fish/km	95% CI		fish/km	95% CI		fish/km	95% CI		fish/km	95% CI	
			lower	upper		lower	upper		lower	upper			
Brown trout	1990	364	205	524	4	- ^b	- ^b	52	22	82	419	- ^c	- ^c
	1991	430	369	492	73	52	94	41	17	66	544	- ^c	- ^c
	1992	204	141	268	237	100	375	60	6	116	502	- ^c	- ^c
	1999	129	74	247	33	16	92	118	84	177	268	200	372
	2000	382	164	954	120	41	410	204	104	433	674	404	1162
Rainbow trout	1990	337	208	468	31	12	51	87	68	107	455	- ^c	- ^c
	1991	50	6	107	122	83	163	122	96	158	298	- ^c	- ^c
	1992	616	250	983	290	122	460	451	236	667	1357	- ^c	- ^c
	1999	11	4	52	3	- ^b	- ^b	178	9	311	226	140	386
	2000	492	255	996	110	38	376	224	155	339	684	493	968
Mountain whitefish	1999	- ^d	- ^d	- ^d	890	519	1571	136	84	237	865	591	1293
	2000	171	57	584	601	375	995	439	301	660 ^e	1154 ^e	859 ^e	1573

^a Brown trout: Small = 150-250 mm, Intermediate = 251-388 mm, Large = >388

Rainbow trout: Small = 150-250 mm, Intermediate = 251-380 mm, Large = >380

Mountain whitefish: Small = 150-199 mm, Intermediate = 200-280 mm, Large = >280

^b No recaptures were encountered; therefore population estimate was set at the total number of captured fish.

^c The 95% confidence intervals for the total brown trout and rainbow trout population estimates were not reported in Courtney (1993).

^d Size class not evaluated in 1999.

^e Includes small size class (150-199 mm FL) only in 2000.

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